DOCUMENT RESUME

ED 301 150 IR 013 490

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TITLE Distance Teaching in Education and Training in the RSA. Report of the Work Committee: The Role of Distance Teaching in Providing Formal, Non-Formal and Informal Education in the RSA of the HSRC Education Research Programme. No. 9.
INSTITUTION Human Sciences Research Council, Pretoria (South Africa).
REPORT NO ISBN-0-7969-0569-X
PUB DATE 87
NOTE 119p.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS *Blacks; *Distance Education; Educational Technology; Foreign Countries; Literacy; *Needs Assessment; Second Language Instruction; *Training
IDENTIFIERS *South Africa

ABSTRACT

This study investigates ways in which distance education could make a greater contribution toward solving the education problems in the Republic of South Africa. The nature of distance education and the types of distance education institutions are examined, and typical characteristics of distance teaching as compared with contact teaching are also considered from an institutional point of view. Seven South African learning needs which may be addressed by distance education are identified: (1) general literacy; (2) language training; (3) conceptual development (compensatory teaching); (4) inservice teacher training; (5) adult education beyond literacy; (6) training of industry trainers; and (7) common occupational and general life skills in the work situation. Particular attention is given to the educational needs of the black and colored populations of South Africa. In addition, the existing distance education infrastructure in South Africa is described. Ten specific recommendations are made, some in relation to the specific areas of learning, and some with regard to the standing and practice of distance education in South Africa. The text is supplemented by 14 tables and three diagrams, and nine appendices provide further details on the issues raised in the text. (40 references) (Author/EW)

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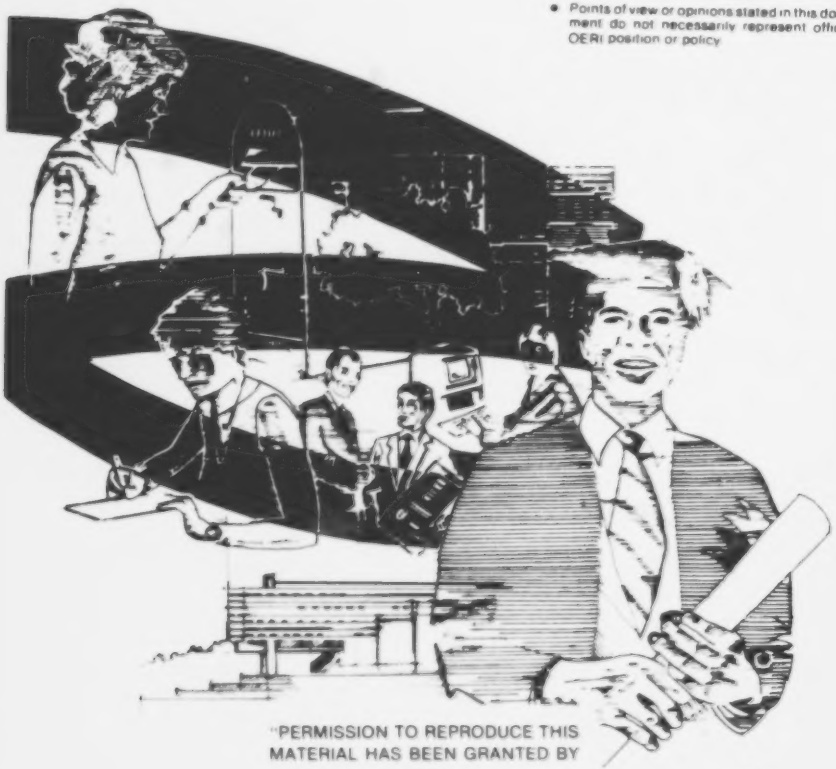

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Distance teaching in education and training in the RSA

Report of the Work Committee: The role of distance teaching in providing formal, non-formal and informal education in the RSA of the HSRC Education Research Programme

Pretoria
Human Sciences Research Council
1987

The HSRC Education Research Programme is organizationally and administratively linked to the Institute for Educational Research of the Human Sciences Research Council.

Cover design: Mrs L. Hearne, HSRC

Research co-ordinator: Mr A. Muller, B.A. (Hons.) M.Ed. HED
Institute for Educational Research
Executive Director: Dr S.W.H. Engelbrecht

ISBN 0 7969 0569 X

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Printed and published by the HSRC
134 Pretorius Street
Pretoria

PREFACE

South Africa is at present experiencing educational problems that are typical of the Third World. In our traditional school system shortages of trained manpower and available funds are inhibiting the ability to meet the growing demand for education. Alternatives therefore have to be sought to ensure that the existing teaching corps and funds are utilized more effectively.

Distance teaching presents interesting possibilities in this regard; on the one hand it is a means of complementing contact education, on the other an alternative form of education.

This investigation aims to present the parameters of a structure that will facilitate consideration of these possibilities. In essence, the nature of distance education has been investigated in relation to contact education, the state of distance education in the RSA has been surveyed, and further learning needs where distance education may have a role to play have been identified.

Mathematics in the senior standards is cited as a case in point where pressure on the current tuition programme in schools could be alleviated considerably by synchronized supplementation with a structured package presented as a study manual. It is self-evident that any such development requires considerably more reseach before it can be realized.

This investigation was carried out at the request of the Main Committee of the HSRC Education Research Programme. On behalf of all involved I wish to thank the main committee for the opportunity to participate.

Appreciation is also expressed to all who collaborated for their various contributions. In this regard special mention must be made of Dr P.G. du Plessis, compiler of the draft report, for the way in which he incorporated comment and suggestions after each meeting for the purpose of the final report.

We trust that this report provides a foundation for further endeavour in its field.

C.F. Crouse

PROF. C.F. CROUSE
CHAIRMAN

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EKSERP

Die ondersoek is gedoen om aanduidings te vind van hoe afstandsonderrig 'n groter bydrae kan lewer tot die oplossing van onderwysprobleme in die RSA.

Die aard van afstandsonderrig en tipes afstandsonderriginstellings word kortliks nagegaan. Tipiese eienskappe van afstandsonderrig teenoor kontakonderrig word uit 'n institusionele oogpunt aangedui.

Twee situasie-analises word gedoen:

Die eerste analise dek Suid-Afrikaanse leerbehoeftes waarin moontlik deur afstandsonderrig voorsien kan word. Sewe sodanige behoeftes is geïdentifiseer.

Die tweede analise dek die bestaande afstandsonderriginfrastruktuur in die RSA.

Tien terreine vir verdere ondersoek word aangedui. Ses daarvan gaan oor die potensiaal van afstandsonderrig ten opsigte van die geïdentifiseerde leerbehoeftes en vier dek aspekte van die stand en praktyk van afstandsonderrig in die Republiek.

ABSTRACT

The field has been investigated to identify ways in which distance education could make a greater contribution toward solving educational problems in the Republic of South Africa.

The nature of distance education and types of distance education institutions are investigated briefly. Typical characteristics of distance teaching as compared with contact teaching are also indicated from an institutional point of view.

Two situation analyses are carried out:

The first deals with South African learning needs which may be addressed by distance education. Seven such needs are identified.

The second deals with existing distance education infrastructures in the Republic of South Africa.

Ten areas of possible further investigation are indicated. Six of these deal with the potential of distance education in relation to specific areas of learning, and four deal with the standing and practice of distance education in the Republic.

SYNOPSIS OF FINDINGS AND RECOMMENDATIONS

The investigation was launched to provide indicators on how distance education could make a greater contribution to solving educational problems in the RSA. It comprised

* an investigation into the nature of distance education,
* a situation analysis of the local distance-education infrastructure, and
* a further situation analysis to identify urgent learning needs where distance education already provides or could provide in the demand.

NATURE OF DISTANCE EDUCATION

Although the term distance education could be considered, in the broader sense, a comprehensive term for all education over a distance (therefore including the educational services of the SABC and the press), the investigation concentrated on the more specific and conventional concept of distance education as implemented in the RSA and abroad by statutory and commercial distance education institutions.

Distance education is often considered "second best". This committee is of the opinion, however, that it warrants a higher status, and should be regarded in its own right as a worthy alternative to contact education in many ways.

On considering teaching methods in terms of educational technology, distance teaching assumes an even more favourable position in comparison to contact teaching. This also introduces a perspective that makes it possible to view studying in a contact situation, and studying by using media in a distance situation as two variables encountered in all educational situations. This view promotes a more wholesome macro-approach to the fulfilment of learning needs.

There are significant points of difference between distance-education and contact-education systems. These differences have divergent consequences for the implementation of the two systems, and it is essential that educational planners and administrators take note of these differences. Failure to do so results in distance education being approached from a cognitive framework based on the implications of a contact-education situation.

The most significant differences between the two systems are the following:

In the first place, distance-education systems have a different cost structure compared to that of contact-education systems. Fixed costs for the planning and presentation of courses are generally higher in the case of distance education, whereas the opposite applies to variable costs. Fixed costs per course can be very high, depending on the sophistication of the educational media used. This principle is well illustrated when the hours of preparation required for a one-hour lecture are compared with those required for a one-hour computer programme. The extent of the demand for a course therefore becomes a critical parameter when determining the viability of distance education.

In the second place, demands that distance-education systems make on administrators and presenters (tutors, teachers, trainers) differ completely from those made by contact education. Personnel are involved in an operational process that is very different from teaching in a contact situation. For this reason training for and experience in contact teaching situations do not prepare individuals for handling distance teaching situations. In addition, opportunities for training presenters of distance education are comparatively rare, and it therefore often lacks the necessary didactic basis.

Discussion of the nature of distance education is concluded by the following appendices that highlight certain approaches to various aspects:

* A flowchart which could serve as cognitive framework in the planning of distance education.

* Discussion of various didactic models which serve as bases for distance education institutions.
* Discussion of the didactic potential of print, radio and television, together with possibilities for integrating them.

SITUATION ANALYSIS

Infrastructure for distance education

Some 300 000 students are involved in distance education institutions in the RSA: Approximately two-thirds are enrolled in correspondence colleges and one-third in the statutory institutions which issue formal certificates, diplomas or degrees. The last mentioned include Unisa, the Technikon RSA, colleges of education for further training, the Further Training Campus of Vista University, and the Technical College of South Africa.

More than a third of the students at correspondence colleges have enrolled for the purpose of obtaining Std 8 and Std 10 certificates. The remainder are divided more or less equally between those who have enrolled for occupation-based professional diplomas or certificates, and those who are engaged in hobby and Bible study courses.

When compared with the rest of the world as regards the number of people involved in distance education per 100 000 population, the rate for whites in the RSA is among the highest in the world (1 800/100 000). This figure is relatively low (330/100 000) in the case of Blacks. The rates for coloureds and Asians lie almost on the median value at 550/100 000 and 660/100 000 respectively.

The second component of the infrastructure, the SABC, has been providing educational radio and television programmes through its departments of ERTV1 and ERTV2/3 since 1984. This is done systematically in order to provide in identified informal/non-formal learning needs of various categories of listeners, and is supported by research. The SABC has been operating a radio service for black schools since 1964.

Identified learning needs

Seven urgent learning needs distance education accommodates at present, or where it could still do so, are identified and discussed. The following recommendations reflect these learning needs:

RECOMMENDATIONS

Regarding learning needs

It is recommended that the desirability of the following be investigated as regards basic learning needs:

* Distance-teaching courses for literacy, in which case radio and television could make significant contributions.
* Systematic language tuition programmes presented by the SABC to help certain groups to acquire fluency in specific languages.

As regards developmental learning needs, investigation of the following is recommended:

* Introduction of distance education courses for non-formal in-service training of unqualified[1)] and underqualified teachers.
* Design and presentation of distance courses for pupils in schools lacking trained teachers. Such courses could be used to good effect by the teachers concerned.

This recommendation is considered a priority.

* Training of trainers serving in industry by the Technikon RSA and/or the correspondence colleges.

---

1) The term unqualified teachers is used to indicate serving teachers who do not hold a professional qualification such as a teaching certificate or diploma.

Further to a recommendation of the Science Committee of the President's Council in 1984, the following is also recommended: Distance education for community educators and their aides should be considered in the case of disadvantaged communities.

* Identification of common occupational and life skills in the work situation which could serve as goal-framework for distance education courses. Tutoring by trainers in the workplace could form an important component of such courses.

Regarding related matters

Investigation of the following is recommended:

* Desirability of creating a national forum for exchanging ideas on distance education.
* Introduction of degree or diploma courses in distance education as specialization options of Didactics.
* Establishing a committee of specialists on distance education to advise the South African Council for Education and the Universities and Technikons Advisory Council. In conjunction with this, the possibility of drafting a macro-plan for utilizing distance education together with other forms of education and training (including in-service training) for the purpose of creating a total strategy to solve the RSA's educational problems.
* Nature of problems pertaining to the integration of print-based distance-education material (correspondence education) with radio and television in terms of South African conditions.

CHAPTER 1

INTRODUCTION

1.1 ORIGIN, COMPOSITION AND PROCEDURE OF THE WORK COMMITTEE

The Work Committee was formed by the Human Sciences Research Council as part of its Education Research Programme. This programme falls under the council's continuing research under the Main Committee of the HSRC Education Research Programme.

The following considerations motivated the investigation:

* The main committee's perception of the need to move towards distance education, since many problems which cannot be accommodated within the structures of formal education have now been approached in the field of distance education throughout the world.
* Awareness on the part of the HSRC Work Committee: Learning needs and media utilization that such an investigation had become necessary.
* Communication from the National Training Board to the HSRC requesting an investigation into the potential of distance teaching to serve as a form of in-service training for developing occupational skills (training) and life skills.

In October 1985 a core group consisting of the following individuals/institutions concerned with the matter was formed to carry out a preliminary investigation:

Chairman:	Prof. C.F. Crouse	Vista University
Members:	Dr N.F. Alberts	National Training Board
	Prof. J.H. de la Rey	College of Education for Further Training
	Dr P.G. du Plessis	Vista University
	Prof. S.W.B. Engelbrecht	Vista University
	Dr S.W.H. Engelbrecht	HSRC
	Prof. P.G. Jooste	Unisa
	Mr A. Muller (Co-ordinator)	HSRC

Mr Z. van Dyk	Technikon RSA
Dr P.J. van Zyl	SABC
Mr G.J.F. Visser	Correspondence College Council.

During the life of the committee, Dr Alberts accepted a Chair at the University of Pretoria. Mr J.F. de Beer was nominated to represent the National Training Board in his stead.

Prof. De la Rey was promoted to Chief Superintendent of Education - Youth Affairs of the Transvaal Education Department. Mr M.J.P. Loots was nominated in his place to represent the College of Education for Further Training.

Dr P.F. Erasmus, head of the SABC Department of Educational Radio and Television Services TV2/3 was co-opted as an additional member.

Dr P.G. du Plessis acted as research officer of the committee. He prepared a series of draft reports which were consecutively refined and finalized in the light of the committee members' comments and inputs.

1.2 AIM OF INVESTIGATION, STATEMENT OF PROBLEM AND DELIMITATION OF FIELD OF INQUIRY

The mandate to the work committee was defined as an investigation into "the role of distance education in providing formal, non-formal, and informal education in the RSA".

The term distance education was interpreted in the first instance as the type of education presented by distance education institutions such as correspondence colleges, the Technikon RSA, Unisa, and the Open University in the United Kingdom. Were distance education however to be interpreted in a wider sense in view of the nature of informal

education, and accepted to mean "education presented over a distance", radio and television services provided by the SABC, as well as the press, gain significance[1]. In addition, computer teaching programmes and computer/video teaching programmes may also be regarded as forms of distance education.

The use of radio and television in teaching and training has been the subject of an earlier HSRC work committee report (the Work Committee: Learning needs and media utilization, 1984). In its report the committee identified 31 learning needs that are particularly significant for the purposes of the present investigation. A number of the committee's recommendations are in the process of being implemented by two recently-established departments of the SABC's educational programmes (ERTV1 and ERTV2/3). This investigation will therefore merely note the SABC's work in this regard.

The Science Committee of the President's Council also published the Report on informal and non-formal education in South Africa during 1984. There are certain areas of similarity, therefore, between the present investigation and the work of this committee.

The role of computers in teaching and training has also been covered by an HSRC Work Committee: the computer in education and training, 1983, and therefore this aspect will not be explored any further in this report.

In view of what has been said, this investigation will centre on conventional distance education, that is, a more restricted interpretation. The term distance education will therefore have this connotation throughout, unless otherwise indicated, or the context makes another

---

1) The press is named solely for the purpose of being included as component of a country-wide distance education system in the broadest sense of the term. This incorporates supplying official and commercial books, magazines, newspapers and pamphlets linked in one way or another to formal, non-formal and informal education.

meaning obvious. In addition, interpretation of the terms education and teaching as in distance education and distance teaching should not be confined to the act of teaching alone. It also includes the act of learning on the part of students separated by distance from their lecturers/tutors, i.e. distance study.

Since distance education in the RSA is conducted mainly by means of printed matter, it is necessary to note other media which could be involved, significantly radio and television. The Open University in the United Kingdom is a good example of institutions that incorporate these media.

In view of the preceding, the aim and scope of this investigation can be summarised as follows:

"Bearing in mind the original mandate of the Main Committee and other factors mentioned under 1.1, to indicate ways in which distance education could make a more significant contribution to solving South Africa's educational and training problems in the Republic of South Africa. Further topics for investigation arising from this will be identified as they become evident.

Therefore, the more specific field covered by this investigation is distance education, in the formal and nonformal fields, for individuals who are at the very least literate, for the purpose of improving their formal qualifications or acquiring other skills. In view of the vast learning need for general literacy, it has been deemed advisable also to note those possibilities that distance education holds for teaching reading, writing and arithmetic to illiterates."

For the purpose of attaining the objective of the investigation, the problem has been defined in the following terms:

1) To delineate the nature of distance education, and to indicate broad outlines of approaches that could be important to the investigation.

2) To carry out a situational analysis of

* the South African distance education infrastructures (including work done by the SABC in this regard) for the purpose of obtaining a picture of the current situation, and the contribution distance education makes to education in this country;
* learning needs in South Africa distance education is able to accommodate, as well as target groups where these particular learning needs exist.

3) Based on the findings of 1) and 2)

* to achieve a synthesis, and formulate recommendations serving the aim set out above; and
* recommend possible topics for further investigations.

1.3 STRUCTURE OF THE REPORT

As indicated, the investigation is concerned chiefly with distance education for the literate. This aspect is examined in Chapters 2, 3 and 4. Appendix A, however, does examine various distance education programmes designed overseas for the purpose of developing literacy.

Chapter 2 investigates the nature of distance education, with particular reference to essential characteristics, and form in which it is practised: it is posited as an alternative to contact teaching. This is done in order to achieve a systematic understanding of the phenomenon, and try to determine its potential.

Chapter 3 presents a situational analysis of existing South African distance education infrastructures, and notes work done by the SABC in this regard. Chapter 4 provides a further situational analysis of major learning needs in which distance education can provide.

Chapter 5 consists of a synthesis of the findings, with recommendations.

A synopsis of the results of the investigation, as well as recommendations are given at the beginning of the report.

CHAPTER 2

NATURE OF DISTANCE EDUCATION

2.1 INTRODUCTION

As mentioned in Chapter 1, the discussion which follows is concerned with conventional distance education. The South African institutions in question include commercial correspondence colleges, the Technikon RSA, colleges of education and further training, Unisa and the Further Training Campus of Vista University. The relevant learning and training requirements include the

* need of adult literates to obtain Std 8 or Std 10 certificates (correspondence colleges, inter alia, provide in this requirement); and
* demand for formal post-Std 10 education, such as further training for teachers, and distance education at technikon and university levels.

Although distance education is often considered a "second-best" form of tuition, the committee is convinced that it has the potential to become a complete educational system in many respects.

This chapter consists of a theoretical approach to distance education, as far as this could be of use in practice. The purpose is to

* identify typical characteristics, and
* structure these where feasible, for the purpose of permitting principles to emerge that are conducive to

  - determining the educational potential of well-grounded distance education in terms of the learning needs in question, and
  - the contribution which selected distance education media can make in this connection.

It is hoped that this approach will establish a more functional structure than one created by prima facie acceptance of existing distance education systems as models, and their description.

Appendix B lists distance education media available for use in the RSA. As their individual and combined potential for distance education towers far above others for our purposes, the discussion that follows considers the roles of only the following media:

* Print (manuals, textbooks, tutorial letters)
* Television (and video cassettes)
* Radio (and audio cassettes).

2.2 CHARACTERISTICS OF DISTANCE EDUCATION

Coldeway (1982) points out that research into matters pertaining to distance education features, vaguely defined fields and variables, rarely has a sound theoretical structure, and deals mostly with solving specific problems.

Keegan (1980) discusses four definitions of distance education formulated by authorities on the subject. By way of summary he lists six characteristic qualities:

* "The separation of teacher and learner which distinguishes it from face-to-face lecturing;
* the influence of an educational organisation which distinguishes it from private study;
* the use of technical media, usually print, to unite teacher and learner and carry the educational content;
* the provision of two-way communication so that the student may benefit from or even initiate dialogue;
* the possibility of occasional meetings for both didactic and socialisation purposes; and
* the participation in an industrialised form of education, which if accepted, contains the genus of radical separation of distance education from other forms."

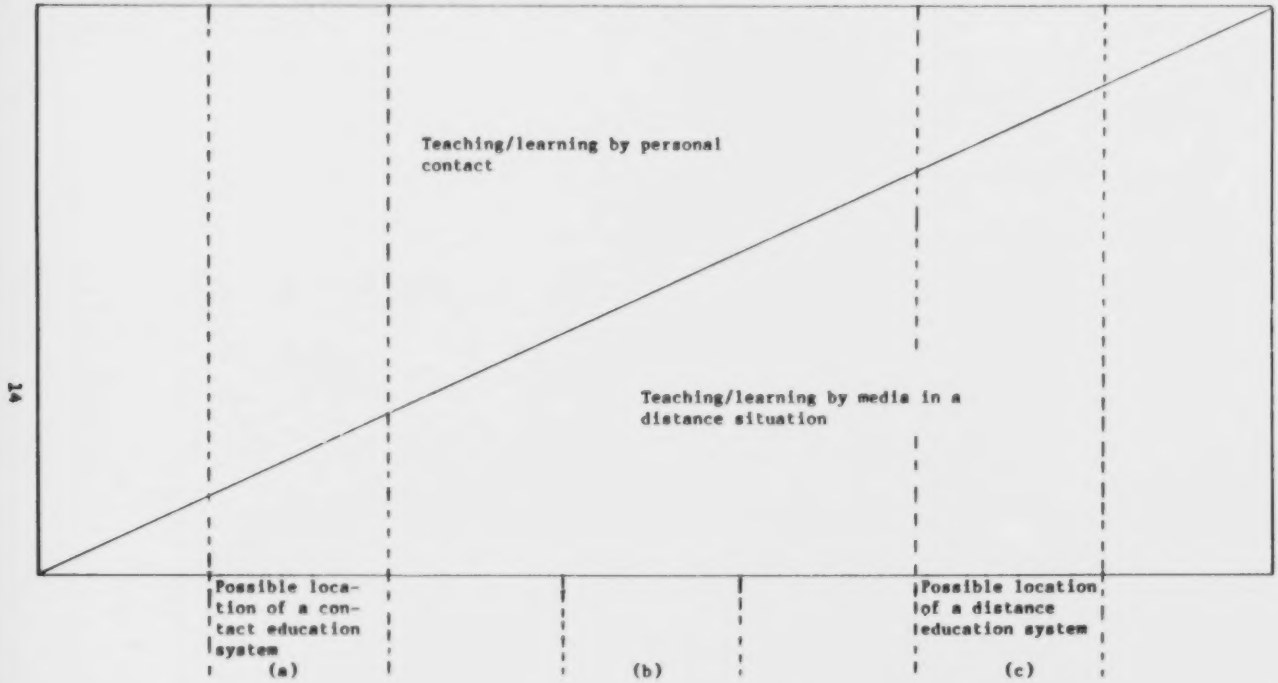
Another approach, evident particularly in Australia, prefers to regard distance teaching and contact teaching as mere variants of teaching media and methods. This approach is related to the views of educational technology on education, and presents an interesting perspective: the essential quality of contact teaching is reflected by the fact that students learn through personal interaction with presenters (teachers, tutors, trainers), and that distance teaching comes about when students are separated from presenters. Education systems are therefore characterised by a specific amount of teaching/learning that takes place during personal contact with presenters, and a specific amount that takes place during independent study utilizing media in a distance situation. In terms of this view, educational systems may be classified along a continuum that extends from one extreme where no distance studying occurs, to the other, where no personal contact occurs. Diagram 1 illustrates this: Area (a) may represent the situation in a contact education system and Area (c) in a distance education system.

This highlights an important point; all contact education contains an element of distance teaching. So for instance, the textbook is primarily a tool of distance education that permits the writer to "teach" students across time and space. Presenters in contact situations therefore avail themselves of distance media when circumstances so dictate. In practice, students studying full-time at home by using textbooks are actually working in a distance teaching situation.

In view of this, the question arises whether an optimum relationship between teaching/learning through direct contact and teaching/learning across a distance can exist within a particular educational system. Such an optimum could perhaps be found in area (b) of Diagram 1. This view opens further perspectives if we think in terms of any combination of teaching/learning through direct contact and teaching/learning across a distance which are both desirable and feasible in a specific situation.

DIAGRAM 2.1

POSSIBLE RELATIONSHIPS BETWEEN TEACHING/LEARNING IN CONTACT SITUATIONS AND TEACHING/LEARNING IN DISTANCE SITUATIONS


Teaching/learning by personal contact
Teaching/learning by media in a distance situation
Possible location of a contact education system
(a)
(b)
Possible location of a distance education system
(c)

The nature of the educational objectives[1] envisaged would also have a direct influence on the location of a particular educational system along the continuum as mentioned. So, for instance, purely intellectual objectives could be achieved by using a large distance teaching component. Objectives embracing manual skills as well, as in the case of certain technical and medical subjects, would demand considerably more direct contact.

Teaching in contact and distance situations gains further dimensions when the implications are examined in 2.4 below. In view of this, teaching in contact situations can be termed "small-scale operations", and that in distance situations (as in distance education) can be termed "large-scale operations" (Ljosa & Willen, 1984). This has far-reaching effects as regards essential aspects of distance education. When large numbers of students are involved, the cost per student is considerably higher in the case of small-scale operations compared to large-scale operations. In terms of economic considerations therefore, small-scale operations should be avoided when learning objectives can be achieved equally well by large-scale operations. For this reason, teaching that demands a contact situation should be determined in advance, and such operations should then be kept to a minimum.

In terms of Diagram 1, large-scale operations group themselves more towards the right along the continuum, whereas small-scale operations are located more to the left.

2.3 DISTANCE EDUCATION INSTITUTIONS CLASSIFIED ACCORDING TO ORGANIZATION AND KIND OF QUALIFICATION PROVIDED

Ljosa (1982) names three types of organization for distance education institutions:

* Commercial enterprises based on private initiative. Many of these are found in West Germany, Great Britain, the USA and France.
* Private foundations not for profit, as found in Scandinavia, Finland and the Netherlands. In these cases the state sometimes provides financial support.

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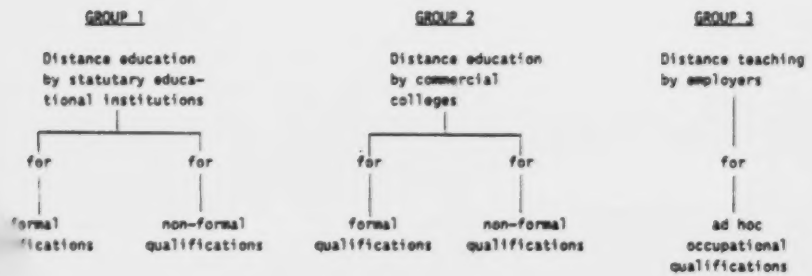
1) The term objectives is used in a general sense and would, for instance, include both aims and targets.

* Those which form an integral part of the state educational system. In socialist countries all distance education is integrated in this way.

South African institutions concerned with distance education can be classified as indicated in Diagram 2.2.

DIAGRAM 2.2

TYPES OF DISTANCE EDUCATION IN THE RSA ACCORDING TO INSTITUTIONAL FORM OF OPERATION AND KIND OF QUALIFICATIONS OFFERED



Group 1 includes institutions such as Unisa, colleges of education for further training, the Technikon RSA and other statutory educational institutions. In the main they award formal degrees/diplomas/certificates, but also present certain courses leading to awards excluded from the formal hierarchy of qualifications.

Group 2 comprises the private correspondence colleges which prepare students for formal examinations such as Std 8 and Std 10, and also for non-formal qualifications where students are examined by the professional body concerned, as in the case of the Diploma in Administration and Commerce (IAC). This group also includes certificates awarded by the college concerned to students who have completed a particular course in, for instance, flower arranging or dressmaking.

Group 3 is confined to in-service training that trade and industry carry out by means of distance teaching. The number of employers and of students involved is very limited, since virtually all in-service training is carried out by means of contact teaching.

Commercial distance teaching institutions present a particular problem. They are administered for the purpose of making a profit. It has become evident both here and abroad that the quality of their instruction has to be monitored. This applies particularly to their correspondence notes, manuals or study guides. It implies centralized accreditation of the colleges and their courses in order to ensure that their teaching complies with certain requirements. Bodies which fulfil this function overseas include the National Home Study Council in the USA, and the Council for the Accreditation of Correspondence Colleges in the United Kingdom.

In South Africa, the Correspondence College Council, which was established in accordance with Act 39 of 1965, has this function to some measure. The council has the authority to impose penalties, even to the extent of withdrawing the registration of a college, should this prove necessary. The council insists on the registration only in the case of colleges operated for profit (several Bible study colleges are nonprofit institutions).

In the following instances accreditation of correspondence colleges becomes essential:

* Where non-formal certificates or diplomas that are awarded have been linked to a formal level for any particular reason. So for example, the Commission for Administration accepts the IAC Diploma as equivalent to the corresponding Bachelor's degree. Obviously, in such cases it is necessary to evaluate course content, presentation, and examination standards before returning a responsible verdict. The same applies where colleges do their own examining for certification purposes, and levels are equivalent to certain formal levels.

* Where colleges give instruction for the purpose of obtaining formal qualifications, but such instruction amounts to mere "exam drill" and does not constitute real teaching, or where instruction is of such low standard that it amounts to student exploitation.

The HSRC is currently investigating various aspects of accreditation.

2.4 CHARACTERISTICS OF DISTANCE EDUCATION AS OPPOSED TO THOSE OF CONTACT EDUCATION

In the following, certain aspects of distance education are highlighted for the purposes of comparison with contact education.

Peters (1982) states the following to summarize the basic advantages of distance education as compared with those of contact education:

"Traditional academic teaching is limited by the unity of persons, time and place, thus excluding many persons. Communication media and 'prefabricated instruction', however, break down this restrictive unity. The best teachers can instruct, not only a class of 20 or 30 students, but a very great number of students who may study when and where they like."

The following is a more detailed discussion of differences between the two educational systems.

2.4.1 Differences in application of didactic principles

Didactic principles naturally apply in the case of both contact teaching and distance teaching. It stands to reason that contact teaching has been the primary focus of attention. When didactic theorists consider distance teaching, they have to concede that didactic theory has been formulated primarily in terms of the situation in classrooms. It has therefore become necessary to reinterpret traditional didactics for the purpose of identifying the implications for distance teaching.

The various didactic approaches applying in the instance of contact teaching are equally relevant to a greater or lesser extent in the instance of distance teaching. This we shall discuss inter alia under 2.5.

2.4.2 Differences in management structure

Daniel and Stroud (1981) state that the classroom is the locus of management in the case of contact education. The presenters of education function as key managers, and are in control in the classroom situation. At institutional level, the major ongoing academic management task seems to consist of activities related to the functioning of the timetable.

In the case of distance education time and place have to be bridged on a large scale between the phases of teaching and learning. Bridging these two stages calls for intervention in the form of complex technological, administrative and managerial processes not present to the same degree in the case of contact education. This demands abilities of those in managerial posts which bear a greater resemblance to the requirements of industrial concerns than to abilities usually associated with managerial posts in traditional forms of education.

This has the following specific effects on distance education:

* The functions of planning, organization, direction and control of education take on a radically different meaning than in the case of contact education.
* Students' studies are more readily disrupted by problems originating at administrative and managerial levels.
* Teaching material could be of a higher quality than that at contact education institutions, since more attention is paid to design and presentation.
* Since the major part of the teaching generally takes place through the medium of print rather than the oral form of lectures, the quality of teaching can be assessed more easily.
* Teaching becomes less personal.

* It is easier to gather data systematically for the purpose of improving course design.
* It is far more difficult in the short term to adjust teaching when circumstances so demand.

2.4.3 Differences in cost structure

Connected to the essentially different management structure indicated in 2.4.2, distance education institutions have a different cost structure.

In the case of contact education, costs are determined primarily by the number of students being taught. Costs related to distance education are determined primarily by the number of courses offered, and also by course development and maintenance (Daniel & Stroud, 1981). Various investigations related to the United Kingdom Open University provide ample illustration of this aspect.

Laidlaw and Layard (1974) have made an intensive study of the cost structure of 26 Open University courses as compared with similar courses at British campus universities.

They have expressed their findings as follows:

"The real strength of the Open University teaching system is the potential economies of scale which can be reaped by substituting capital for labour. This means that a major part of the costs of the course become fixed and invariant with respect to student numbers. The cost figure thus has high fixed costs and low marginal costs. By contrast campus university courses have low fixed costs but high marginal costs. For low levels of operation the campus universities are more efficient, and for high levels the Open University system. At some scale there is a break-even point."

The investigation has reflected this in another way, in terms of the ratio of fixed costs : variable costs. The ratio for six social science courses was 1 600:1 for the Open University as compared to 8:1 for comparable courses at universities offering contact education.

Cost structures such as that of the Open University are typical of modern technological production methods. This clearly illustrates that, as far as its organizational structure is conterned, distance education may be considered an industrialized form of education. It is therefore able to contribute towards solving many of the teaching problems developing countries experience (Daniel & Stroud, 1981).

Table 2.1 reflects the same cost structure from another angle. Here Sparkes (1984, p. 207) of the Open University provides representative figures to indicate how labour-intensive various educational methods are.

TABLE 2.1

EFFECTIVE USE OF ACADEMIC MANPOWER

Teaching method	Number of academic man-hours per student-hour of work generated	
Lecturing	2 - 10	
Small group discussion	1 - 10	
Teaching by telephone	2 - 10	
Video-tape lectures (for television)	3 - 10	*
Audio-vision[1)]	10 - 20	*
Teaching text	50 - 100	**
Broadcast television	100 or more	**
Computer-aided learning	200 or more	*
Interactive video disc	300 or more	**

* requires support staff
** requires several support staff

Wagner (1977) gives the following figures to indicate that teaching via the Open University is more cost-effective than contact education:

* The cost per Open University graduate in the particular investigation was less than half that of a graduate at a contact education university.

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1) The term audio-vision is used where radio-discussion is combined with illustrated printed matter.

* The cost to the national economy for equivalent undergraduate students favoured the Open University at the ratio 6:1. This takes into account salaries forfeited by fulltime students during their years of study.

Perraton (1982) compared cost figures for successful students from eight distance education institutions in various countries with those for local contact education institutions. She established that distance education was cheaper in five cases, in one it was more expensive, in one it appeared more expensive, and in the last case (21 % pass rate as a percentage of examination registrations) it was more expensive than day school but not more expensive than boarding school. In her opinion, the cost of distance education is seldom less than half that of contact education.

2.4.4 Differences in personal contact

Keegan (1980) mentions lack of personal contact as a source of frustration for presenters of distance education: The spoken word plays a minor role during the course of teaching, whereas visual experience, the written word in particular, assumes major significance. (In this regard distance education bears a greater resemblance to real life, where most knowledge is acquired through visual perception.)

Another factor that presenters of distance education have to contend with is the industrialized nature of its activities, such as specialization, and the all-inclusive planning and scheduling that automated processes entail. Academics are not normally accustomed to a working environment of this nature. The fact that certain academics do prefer a working situation where they are removed from their students should be mentioned however.

In addition, distance education means that students face a learning situation where personal initiative plays an important role in their studies, independent study therefore attains genuine significance in this instance.

2.4.5 Differences in evaluation of students

The qualities of the particular correspondence model[1] of distance education primarily in use in South Africa, influences the evaluation of students in a number of ways:

* In contact education situations, formative evaluation of students is an ongoing process, frequently proceeding without the conscious knowledge of students, witness presenters' answers or reactions to the questions/answers/achievements of students. In the instance of the correspondence model of distance education, conscious endeavour is necessary to ensure that feedback is obtained, for example, by means of objective self-evaluation questions and answers that form part of study manuals' structure, and by providing for telephone contact or correspondence between presenters and students. Feedback on assignments students have submitted for marking is frustratingly slow and cumbersome when compared to the possibilities that are inherently part of contact education.

* Administrative arrangements for examinations differ from those for contact education. Distance education demands arrangements for a number of examination centres, distributed throughout the geographical area in question. These arrangements of necessity go hand in hand with additional organizational, administrative and security measures.

* Oral and practical examinations are not possible in the case of distance education unless the system has been designed specifically to accommodate this form of evaluation, or external facilities and examination procedures are used.

* In the case of contact education at school level there is a general move away from external examinations, but this is not possible in the case of distance education. It means, for instance, that external examinations have to be written as long as distance education remains available for pupils wishing to write Std 8.

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1) Various models of distance education are discussed in Appendix D.

2.5 APPROACHES TO DISTANCE EDUCATION

2.5.1 General

Holmberg (1981) states the following regarding distance education:

"What I think is most helpful in creating cost-effective and educationally effective systems in distance education is not technology but a proper theoretical base. This simply means that we make sure we know what we are after and that we make and test a set of consistent assumptions based on every-day experience on how to reach our aims. In this way we acquire guidelines for action."

Although this statement may seem self-evident, the history of introducing technological apparatus in teaching has indicated the tendency to create unrealistic expectations, and that these ultimately result in disappointment because simple teaching principles have been disregarded.

Appendices C, D and E contain more specific lines of thought on distance education.

Appendix C presents a comprehensive framework that sets out and describes the functioning of a distance education system. This may help to ensure that all components, processes and links are taken into account during consideration and implementation of the system.

Appendix D presents types of distance education systems in terms of didactic models which can be used.

Appendix E examines the didactic potential of print, radio and television.

2.5.2 Approach in the RSA

As already stated, distance education institutions in the RSA mainly employ the correspondence model, and print is the medium most generally used. The format is frequently more academic than didactic, and corresponds largely with that of textbooks. Probable reasons for this include the following:

* Authors generally have little concept of how didactic principles are applied to printed matter.
* The prime consideration of writers may be to appear academically acceptable in print (manuals are therefore written more for colleagues than for students).
* The erroneous assumption on the part of many South Africans, that academic style of writing reflects the academic validity of the material or argument. Less-formal style is therefore considered a feature of non-academic material, and is thought to indicate a low academic standard.

Peters (1979) of the Fernuniversität provides an international perspective of the role of print, which probably applies to the RSA. He is of the opinion that the value of print has been underestimated, and that it has been under-utilized as regards its educational and teaching potential because

* spoken language is preferred to written material in traditional contact education,
* printed matter is regarded as a conventional medium in educational technology,
* teaching research has consistently ignored the role of print in learning.

Whatever the reasons for the present situation, this attitude clearly prevents print from being used to maximum effect. The fact that this affects large scale operations as indicated in 2.2, complicates matters further. "Errors" in large-scale operations often have to be corrected by means of the more difficult and more expensive process of personal interaction between presenter and students (small-scale operations).

CHAPTER 3

SITUATION ANALYSIS: EXISTING INFRASTRUCTURE FOR DISTANCE EDUCATION IN THE RSA

3.1 DISTANCE EDUCATION INSTITUTIONS

Table 3.1 presents an overview of the distance education institutions in the RSA, type of education they offer, and number of students they serve.

The following distance education in-service training courses have been excluded in Table 3.1:

* Specialized administrative and telecommunications courses presented by the SA Transport Services at the Railways College at Esselen Park.
* Defence Force development courses (mainly the South African Air Force), which make use of distance education to a limited extent.

Table 3.1 indicates that some 300 000 students are involved in distance education. About two-thirds of these are registered at correspondence colleges, and one-third at statutory institutions which issue formal certificates, diplomas and degrees.

The largest of the statutory institutions is Unisa, which accounted for about 77 000 students of a total of 100 000 in 1985. Next largest is the Technical College of South Africa with an estimated 7 500 students, followed by Vista University's Further Training campus with 7 000 students, the various colleges of education for further training with 4 600 students, and the Technikon RSA with 4 400 students.

More than a third of all the students at correspondence colleges are working towards Std 8 or Std 10 certificates. Appendix F (the most recent complete statistics for correspondence colleges) indicates that about half the remaining students enrolled for vocationally oriented and professional courses, and the other half for courses which may be grouped together under the headings hobby courses and Bible study courses.

TABLE 3.1

DISTANCE EDUCATION IN THE RSA ACCORDING TO ACADEMIC NATURE AND POPULATION GROUPS, 1985

Institutions, levels and type of education	Total	Population group			
		White	Coloured	Asian	Black
Statutory institutions					
Tertiary					
Unisa	77 028	46 950	3 968	8 290	17 820
Technikon RSA	4 435	3 459	177	133	666
Colleges of education for further training (Teachers)	4 593	3 842	751	-	-
Vista - Further training campus (Teachers)	6 973	-	-	-	6 973
Secondary					
Technical College of South Africa[1]	7 458	5 366	719	383	990
Correspondence colleges[2]					
Secondary education (formal qualifications)	70 100	18 100	4 500	2 300	45 200
Vocational training, hobby courses, Bible study courses (non-formal qualifications)	119 700	63 600	9 900	4 500	41 700
GRAND TOTAL	290 287	141 317	20 015	15 606	113 349

1) Figures estimated as follows:
New registrations for 1985
plus 50 % for active students registered during the previous year.

2) Figures estimated as follows:
Official statistics as at February 1985
plus 30 % to bring the figures up to correspond with new registrations for the entire year
plus 50 % for active students registered during the previous year.

Figures include private vocational schools. In 1983, between 5 % and 6 % of the total number of students registered at correspondence colleges and private vocational schools attended classes full time.

SOURCES: 1. South Africa (Republic). Central Statistical Service, 1985. Statistical news report: Educational statistics 1984 and 1985. Summary. Pretoria: Government Printer.
2. Unpublished figures, Central Statistical Service, Pretoria: 1983 Census survey of correspondence colleges and private vocational schools. Pretoria.
3. Internal figures obtained from the Technikon RSA, the College of Education for Further Training, Pretoria, Vista University and the Technical College of South Africa.

In the following the focus is on selected aspects of certain institutions mentioned in Table 3.1:

3.1.1 Statutory educational institutions

Statutory educational institutions are state-subsidized, but subsidy formulas vary according to the type of institution. Institutions differ also as regards extent of financial and academic autonomy.

Where necessary, the nature of each institution is briefly indicated.

Unisa is well-known and requires no further discussion.

The Technikon RSA offers distance education in approximately thirty national diploma courses, as well as a number of national certificate and higher certificate courses in administration and accountancy, management, mining, mathematics, physical and biological sciences, and a few additional career-oriented courses.

The three colleges of education offering further training for white teachers, had the following student populations:

PROVINCE	NUMBER OF STUDENTS
Transvaal	3 164
Natal	585
Cape	93
	3 842

Training offered at the CEPT of the Transvaal Education Department includes the following:

* Further Diploma in Education (FDE; M + 4) in ten fields of specialization, such as remedial education, youth preparedness, minimal brain dysfunction, educational management.
* Diploma in Education (DE; M + 3) for teachers in possession of a two-year teaching diploma (small number of students).

* Higher Diploma in Education (HDE; M + 4) for teachers holding an approved three-year primary-school oriented diploma or equivalent.

The CEFT operates in conjunction with Unisa.

The Further Training Campus of Vista University presents courses for upgrading the professional qualifications of black teachers, enabling them to teach the following at secondary schools:

* Two subjects for Stds 6 to 8 (Secondary Education Certificate, M + 2; equivalent to the Junior Secondary Teachers' Certificate (JSTC) of the Department of Education and Training)
* Home Economics for Stds 6 to 10 (Secondary Education Diploma, with specialization in Home Economics, M + 3)
* Two subjects for Stds 9 to 10 (Secondary Education Diploma, M + 3).

The Technical College of South Africa has functioned independently of the Technikon RSA since 1984. The Technical College offers subjects required mainly by apprentices for national technical certificates in their respective trades.

3.1.2 Correspondence colleges[1)]

Correspondence colleges are commercial institutions and receive no state subsidy.

In December 1985, 49 colleges were registered with the Correspondence College Council. Of these, five could be considered large colleges, and two have international affiliations. These five represent the group engaged in preparing students for formal school qualifications and a number of vocational and professional qualifications in trade and industry. Two of the smaller colleges offer training for specialized professional qualifications, one in engineering, and one in insurance.

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1) Some of the information in connection with correspondence colleges was provided by Mr G J F Visser, Chairman of the Correspondence College Council, December 1985.

The remainder of the 49 colleges could possibly be classified as institutions that provide specialized training for occupations such as secretarial work and management, and those providing training in various hobbies such as needlework and fashion design.

The list provided by the Central Statistical Service names 67 colleges, and the statistics contained in Table 3.1 have been computed from returns submitted by these 67 institutions.

Theological/Bible study colleges feature prominently in the total given in Table 3.1, but because many of them operate not for profit, they are not required to register with the Correspondence College Council.

The most recent complete statistics for correspondence colleges are given in Appendix F and are for June 1983.

Comparison between the figures in Table 3.2 that follows provide some indication of the ratio of commercial distance studies in the RSA to those in certain countries abroad.

TABLE 3.2

DISTANCE-TAUGHT STUDENTS IN PRIVATE COLLEGES IN A NUMBER OF EUROPEAN COUNTRIES AND THE RSA PER 100 000 POPULATION, CIRCA 1975

Country	Population (millions)	Students per 100 000 inhabitants
Norway	4	5 000
Finland	5	1 490
The Netherlands	14	1 260
Sweden	8	1 220
Britain	56	890
Republic of South Africa (1980)	25	710
Spain	35	660
Belgium	10	650
Switzerland	6	630
France	53	620
Austria	8	570
Denmark	5	510
West Germany	62	160
Italy	54	150

(Sources: Baath, 1980, p. 17 and Table 3.3)

The figure for the RSA was computed and sub-divided as follows:

TABLE 3.3

DISTANCE-TAUGHT STUDENTS IN PRIVATE COLLEGES IN THE RSA PER 100 000 POPULATION, 1980

	Total	White	Coloured	Asian	Black
Population (millions)	25	4,6	2,6	0,8	17
New registrations by private correspondence colleges for the year ending June 1980 plus 50 % (thousands)	178,5	82,5	14,25	5,25	76,5
Per 100 000 population	710	1 800	550	660	450

(Sources of figures: 1980 Population census and Report 21/02/15 of the Central Statistical Service.)

The population figures include Ciskei, which was not yet independent at the time.

The student numbers include students from outside the borders of the RSA - these numbered about 20 000 of the total, of whom little more than half were Zimbabweans. If we accept that all foreign students were black, the figure per 100 000 of the black population would drop from 450 to 330.

The figures indicate that the ratio of distance-taught students for white South Africans (1 800/100 000) is among the highest in the world, while the corresponding ratio for blacks is relatively low. For coloureds and Asians (550/100 000 and 660/100 000), the ratios are close to the median of the world figures given in Table 3.2.

3.2 THE SABC[1)]

The SABC operates its educational broadcasts through two departments, the Department of Educational Programmes RTV1(ERTV1), and the Department of Educational Programmes RTV2 and 3 (ERTV2/3), which has the various black communities as its target group. At this stage the SABC finances these programmes.

3.2.1 Department of Educational Programmes RTV1

The Department of ERTV1 has broadcast television programmes in the categories informal and non-formal education for pre-school children, schoolchildren and adults (but no radio programmes) since June 1984 . Table 3.4 indicates the department's programmes, as well as a selection from series planned in 1985.

The department presented The Safety Saga as a tele-course in 1985, working in co-operation with the National Occupational Safety Association (NOSA). Tele-course is the term used for a course which consists of either television or video material, accompanied by supporting printed matter for the purpose of obtaining a diploma or certificate. NOSA compiled the study guide and supervised testing over a distance using sets of objective questions. Of the 30 000 people who registered, about 8 000 passed the course. By September 1985 about 450 of the programme series on video tape had been sold.

At present negotiations for three more tele-courses are under way. Party to these negotiations are the organizations who will co-operate by providing the subject content, and arranging for the testing.

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1) The data under this heading were obtained from an as yet unpublished study by Dr F.J. Nieuwenhuis and from documents obtained from and discussions with Dr P.J. van Zyl, Mr J.J. Niemandt and Mrs E.A.G. Louw, all of the departments of ERTV1 and ERTV2/3 of the SABC (December 1985)

TABLE 3.4

EDUCATIONAL PROGRAMMES OF THE DEPARTMENT ERTV1 OF THE SABC

Programmes	Examples of titles planned during 1985
Afrikaans educational programmes	Studiemetodes, Wie nie waag nie, wen nie (entrepreneurship), Die ekonomie in beeld, Van kleuter tot skoolkind (school readiness), Kinderlektuur (for parents), Pa en seun, 'n Dag in die lewe van 'n wetenskaplike.
English educational programmes	Harry's house (a series which includes road safety, baby animals, village life), From 0-3 (developmental phases of the child), World of Tomorrow (13 episodes which focus on various occupations), Parent of the adolescent, Money, money, money (the development of the nature of monetary systems).
Afrikaans training programmes	Produktiwiteit: 'n sleutel tot welvaart, Fokus op arbeidsverhoudinge, Telefoonetiket, Die huwelik: 'n vennootskap, Aftrede: die goue jare, Spaar: 'n belegging vir die toekoms, Selfbeeldinstandhouding
English training programmes	The edge (correct use of tools), Media in training, Selling, Alcohol and drug abuse, Stress management, Small business management, Farm management.

3.2.2 Department of Educational Programmes RTV2/3

This department incorporates the school radio service and ETV programmes for the Black communities.

The school radio service (which has been operating since 1964 and has been modified any number of times since) covers certain subjects for each school standard. Table 3.5 summarizes the 1986 programme for the section.

TABLE 3.5

SCHOOL RADIO PROGRAMME OF THE DEPARTMENT ERTV2/3 OF THE SABC FOR 1986

BROADCASTS IN HOURS PER STANDARD PER SUBJECT

PRIMARY PUPILS SSA TO STANDARD 2

Subjects	SSA	SSB	Std 1	Std 2	SSA - Std 2	Total
Afrikaans			1,25	1,25		2,50
English			1,25	1,25		2,50
Mother tongue	1,75	2	1,25	1,25		6,25
Religious education	2	2	1	1		6
Health education	2	2	1	1		6
For your information	2	2	1,25	1		6,25
Environmental studies			1	1		2
Story time (Nature and environmental conservation)					7,5	7,5
TOTAL NUMBER OF HOURS	7,75	8	8	7,75	7,5	39 hours

PRIMARY PUPILS STD 3 TO STD 5

Subjects	Std 3	Std 4	Std 5	Total
Afrikaans	3	4	3,5	10,5
English	4	4	3	11
Mother tongue	4	4	3	11
Geography	1,67	1,67	1	4,34
General Science	0,67	0,67	0,33	1,67
Biology	1	1	0,67	2,67
Guidance			1	1
Mathematics	1,67	1,67	2	5,34
TOTAL NUMBER OF HOURS	16,01	17,01	14,50	47,52 hours

SECONDARY PUPILS STD 6 TO STD 10

Subjects	Std 6	Std 7	Std 8	Std 9	Std 10	Total
Afrikaans pre-scribed work			2		2	4
English pre-scribed work			2		2	4
Mother tongue prescribed work			2		4	6
General Science	1	1	0,5			2,5
Biology	1	1	1,5	5	5,5	14
TOTAL NUMBER OF HOURS	2	2	8	5	13,5	30,5 hours

The presentations are planned in co-operation with the Department of Education and Training. Broadcasts are complemented by pamphlets, posters and texts of the lessons, and accompanied by a cassette service. About 4 500 texts are distributed annually, and casette sales total some 6 000.

The presentations are designed to complement the work of teachers and efforts are also made to fulfil a compensatory function[1]. Proper integration with school teaching remains the greatest problem.

The ETV programmes of the Department of ETV2/3 have been broadcast since 1984. These include various categories of educational programmes as indicated in Table 3.6. Themes covered by television are also generally presented in modified form over the radio. TV2/3 reaches the urban black population in the main, and has a penetration of 19 %. black families own 770 000 television sets overall. It has been established that the educational television programmes for adults on TV2/3 draw a large viewing public - more than 1,1 million, while the highest figure for any single programme was 1,6 million.

Radio reaches both urban and rural black populations, and has a penetration of 76 % in nine languages according to geographical region.

The department conducts its own research, but also works in conjunction with the HSRC and various universities. A work committee of the HSRC investigated viewers' and listeners' use of "look-and-listen groups" as regards educational radio and television. Look-and-listen groups refers to educational programmes broadcast according to a fixed schedule, and augmented with printed matter. Organized groups watch or listen regularly to these broadcasts, and then discuss the content.

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1) The term compensatory function refers here to the concept as used by writers like Pretorius (1985). It means additional education which is necessary to offset disadvantages originating in environmental factors like negligence and poverty, and which handicap individuals when they have to function in the dominant culture outside their environment.

TABLE 3.6

EDUCATIONAL PROGRAMMES OF THE DEPARTMENT ERTV2/3 OF THE SABC, 1985/86

Category of programmes	Examples of titles in 1985/86
Manpower utilization	How to be successful in your job; Productivity; A story about the quality of life; The world of work (careers).
Community development	Social organizations in the community; Parents' involvement in school.
Occupational development	Free market systems; Money; Our working conditions (occupational literacy).
Social literacy	Unemployment Insurance; Pensions.
Preschool children (groups 3–4 years and 5–6 years)	Programmes on the body, water, music, tools.
Adolescents (includes 7 years to ± 23 years)	Learning to read maps; Automating the office; Hamlet; Choosing what to buy; Care of pets; Venezuela.

NOTE: The programme for adolescents is broadcast in English. The other programmes are broadcast either in English or in one or two black languages.

3.2.3 Educational radio channel

At the time of writing this report it was noted that the radio channel previously known as Springbok radio has become available for the purpose of educational radio. This should open up a new dimension in the use of educational radio services in the RSA.

CHAPTER 4

SITUATION ANALYSIS: IDENTIFIED LEARNING NEEDS IN THE RSA

4.1 INTRODUCTION

A basic assumption made in the report of the Main Committee (1981), and also emphasized in the Report of the Science Committee of the President's Council on informal and non-formal education in South Africa (1984), is the principle that the learning needs of the individual cannot be separated from the requirements of the economic, social and political structure of the community. The Science Committee in fact says in its report (p. 83) that "the first priority should be the identification of learning needs and relating them to social needs."

Learning needs that are addressed must therefore be relevant. As far as school education is concerned, the relevance (validity) of the formal learning requirements addressed by the school systems will not be investigated here: it is accepted that the formal teaching system bears the responsibility of determining relevance. The relevance of distance education that aims at attaining this kind of formal qualification is to be found therefore in the fact that it offers the kind of education, and develops skills in students that are demanded by the formal teaching system (such as by passing formal examinations).

As regards distance education with other aims, its relevance must be tested in terms of the requirements of both individuals and the community in the short and the long term, as indicated in the reference above.

Further discussions of learning needs should therefore be seen in these terms. The Science Committee regards the concept <u>environmental disadvantagement</u> as the universal origin of the learning needs which should be considered.

Environmental disadvantagement is defined as "failure to adapt to the requirements of the dominant cultural environment within which ..... participants have to or wish to function (p. 2)." (See also the connection made by Pretorius (1985) between environmental disadvantagement and compensatory education, 3.2.2.)

The HSRC Work Committee: Learning needs and media utilization devoted a chapter to learning needs in Southern Africa in its report The use of radio and television in education and training (1984). As mentioned already, thirty-one learning needs are discussed (p. 20-41). Thirty of these are also included in the Report of the Science Committee of the President's Council on informal and non-formal education in South Africa (1984) and these we include as Appendix C. Many of these learning needs fall within the ambit of informal education, and radio and television are excellent media for making a contribution across distances to fulfil in its requirements.

As previously mentioned, the above work committee reported on utilization of radio and television in education and training, and the SABC Departments ERTV1 and ERTV2/3 are already actively engaged in implementing recommendations that have been made.

This chapter focuses on learning needs selected from the 30 listed in Appendix C. This selection has been made on the basis of learning needs identified in Black and Coloured communities where distance education could make a valid contribution towards alleviating problem areas. These learning needs are summarized in Appendix H, and have been grouped under the headings Basic learning needs (need for minimum skills in order to be able to participate meaningfully in society) and Developmental learning needs. In some cases the various individual needs overlap, both as far as their nature and their target groups are concerned. For the sake of clarity, however, they are listed separately. Broad categories of target groups are indicated at the same time.

The basic learning needs have been grouped as follows:

* Adults' need for general literacy (learning need A).

* The need for language tuition to acquire fluency in specific languages (learning need B).
* The need for conceptual development (learning need C).

These can be considered informal learning needs in which media such as radio, television, cassettes, books and magazines can readily provide over a wide area. These needs have been included, however, because they are closely linked with the other learning needs in which conventional distance education can provide.

Basic learning needs are discussed under 4.2.

Developmental learning needs consist of the following:

* The need for further training and in-service training of teachers (learning need D).
* The need for adult education to bridge the gap between general literacy and Std 10 (learning need E).
* The need for the training of trainers in industry (learning need F).
* The need for common occupational and general life skills in the work situation (learning need G).

This group of learning needs is particularly relevant to distance education as referred to in Chapter 2. It is discussed under 4.3.

4.2 BASIC LEARNING NEEDS

4.2.1 Adults' need for general literacy

The figures in Table 4.1 were drawn from the 1980 census data by the Institute for Research into Language and the Arts (IRLA) of the HSRC in order to indicate the degree of literacy of blacks and coloureds in the RSA. The institute identified Std 3 as the minimum level of schooling required to ensure literacy.

TABLE 4.1

DEGREE OF LITERACY OF BLACKS AND COLOUREDS IN THE RSA, 20 YEARS AND OLDER, 1980[1]

Population group	School standard attained									
	No formal education		Std 2 and below		Std 3 and below		Std 4 and below		Std 5 and below	
	Number	%	Number	%	Number	%	Number	%	Number	%
Black	3 268 900	40	4 486 180	55	5 039 440	61	5 671 660	69	6 353 860	77
Coloured	254 100	20	395 300	32	4 832 800	39	602 740	48	772 520	62

1) Source: Institute for Research into Language and the Arts, HSRC, provided by Miss C. Ellis.

In terms of Table 4.1 some 4,5 million blacks (55 % in the group aged 20 years and older), and 400 000 coloureds (32 % of the same age group) are functionally illiterate. About 6,4 million blacks (77 %) and 770 000 coloureds (62 %) had only completed Std 5 or below.

The problems resulting from this situation are outlined as follows by the HSRC Work Committee: Learning needs and media utilization (1984, p. 37):

"This leads to vast problems such as

* increased alienation and even conflict between illiterate parents and school-going children, with serious social implications, and

* an inability to check the ever-growing manpower shortage. Millions of workers have to be provided by a section of society of which a large part is still not adequately literate."

For this reason it is extremely important that the development of basic literacy among adults should be encouraged to a far greater extent than is the case at present.

In addition to the fact that literacy is associated with school standard completed, it is important to note that maintaining the level of literacy depends on continued practice in everyday situations.

4.2.2 Need for language tuition to acquire fluency in specific languages

There is a need for

* everyone to be able to speak at least one official language fluently, and
* whites to be able to speak at least one black language fluently.

The need to speak one official language fluently is evident particularly in black communities where African languages are spoken as the mother tongue. This manifests itself chiefly in four situations:

* Formal education: where students are expected to practice sophisticated communicative skills in one official language.
* In-service training in the work situation: where at least everyday communicative skills are demanded.
* Communication in the actual work situation: where demands increase as the worker rises above the level of unskilled labourer and operator, and is required to start functioning in a supervisory capacity.
* Communication between black and white during daily interaction, where inter-group relations can be developed.

The ability to write the language is of course closely linked to the above, but is included rather under the need for general literacy.

4.2.3 Need for conceptual development (compensatory education)

The need for conceptual development originates in environmental disadvantagement, to which the Science Committee of the President's Council (1984) devotes a great deal of attention. It is encountered among adults, students, pupils and preschool children, and may be considered a general need.

In its report on informal and non-formal education in South Africa (1984, p. 93, 94), the Science Committee associates itself with the views of C.A. Taylor that in this case we have to do with a vicious circle of parents who are incapable of or neglect to create an educative home environment, which leads to children who are not ready for school, who drop out, or under-achieve at school, and who in turn then become parents who are incapable of creating an educative home environment.

The problems become more acute if we take into account that the black pupil

- studies foreign concepts and views which are culturally alien to him, and that these are hardly likely to attract his interest or generate his enthusiasm unless he disassociates himself to some extent from his own culture,
- studies learning content in a foreign language which can relate only artificially to his experience of reality,
- is at the mercy of unqualified and underqualified teachers who are themselves necessarily unsure of the teaching content.

High drop-out rates in black schools (46 % leave school before reaching Std 2) bear witness to, among others, the factors mentioned above (Science Committee of the President's Council, 1984, p. 63).

In comparison to their white peers, black pupils tend to accumulate an increasing handicap as they progress. This takes the form of either shrouding themselves in artificiality as they move up the academic ladder, or a tendency towards disassociating themselves from the heritage of their own group.

4.3 DEVELOPMENTAL LEARNING NEEDS

4.3.1 Further training for teachers

The need for further training, and in-service training of unqualified and underqualified teachers in black and coloured education are examined under this heading. The Main Committee of the HSRC Investigation into Education in the RSA (1981, p. 60) highlights the need for training by saying that "the critical shortage of professionally qualified teachers is one of the most serious problems confronting education in the RSA. The most pressing shortage of teachers in regard to both quality and quantity exists in schools for Blacks and Coloureds."

(1) Black education

Table 4.2 reflects the qualifications of black teachers in the RSA in 1985. Figures for schools of the Department of Education and Training and for the self-governing states are indicated separately. Figures for the TBVC countries are not indicated, but in total they would be of more or less the same order as those for the Department of Education and Training.

If we accept requirements set for white education as our standard[1], that is

* Std 10 followed by three years of tertiary education (including professional training) for primary teachers, and
* Std 10 followed by four years of tertiary education (including professional training) for secondary teachers,

equivalent conditions in the Department of Education and Training and in the self-governing states were as follows during 1985:

* 97 % of all serving teachers did not comply with the requirements.
* This figure represents 99 % of all primary teachers and 91 % of all secondary teachers.

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1) A realistic interim goal would be Std 10 plus two years of tertiary education for primary teachers and Std 10 plus three years of tertiary education for secondary teachers.

TABLE 4.2

QUALIFICATIONS OF BLACK TEACHERS IN THE RSA[1], 1985

Department of Education and Training				Departments of Education : Self-governing States		
Type of education		Total	Qualifications of teachers:	Type of education		Total
Primary	Secondary			Primary	Secondary	
			Without a teaching qualification:			
5 457	24	5 481	Std 8 or below	6 405	72	6 477
22	14	36	NTC	12	20	32
1 692	514	2 206	Matriculation or senior certificate	4 706	2 586	7 292
8	126	134	Degree	4	168	172
7 179	678	7 857	Subtotal	11 127	2 846	13 973
			With a teaching qualification:			
3 350	19	3 369	Std 6	2 535	8	2 543
18 828	706	19 534	Std 8	18 148	489	18 637
49	122	171	NTC	49	28	77
5 422	3 115	8 537	Std 10 with FTC	8 596	4 926	13 522
170	2 569	2 739	Std 10 with JSTC	120	3 422	3 542
279	1 250	1 529	Std 10 with 3 years teacher training	386	1 893	2 279
31	852	883	Degree	29	1 256	1 285
28 129	8 633	36 762	Subtotal	29 863	12 022	41 885
35 308	9 311	44 619	TOTAL	40 990	14 868	55 858

1) The departments employed 934 white teachers, who are excluded from this table. Almost all of them were in secondary schools, and about two-thirds could be regarded as either unqualified or underqualified.

SOURCE: Annual Report of the Department of Education and Training 1985.

Table 4.3 indicates the immediate training requirements of teachers, using what could be considered an order of priority. The following teacher training needs have been identified:

* Additional schooling for teachers who do not have Std 10 - 54 855 primary and 1 502 secondary teachers.
* Professional teaching qualifications for those teachers with Std 10 only - 6 410 primary and 3 394 secondary teachers.
* Additional tertiary training for those teachers with both Std 10 and a professional qualification - 14 308 primary and 17 175 secondary teachers.

The data paint an overall picture which becomes even more sombre in view of the following:

* large pupil-teacher ratios, particularly at primary level, and
* rapid growth rates anticipated for the black school population, a trend linked with the high birth rate of the black population.

TABLE 4.3

IMMEDIATE TRAINING NEEDS OF BLACK TEACHERS IN THE SERVICE OF THE DEPARTMENT OF EDUCATION AND TRAINING AND THE SELF-GOVERNING STATES IN 1985

Group	Type of immediate training needs	Department of Education and Training: Training needs of		Self-governing states: Training needs of		Total training needs of	
		Teachers in primary schools	Teachers in secondary schools	Teachers in primary schools	Teachers in secondary schools	Teachers in primary schools	Teachers in secondary schools
1	Need to bring all teachers with inadequate schooling up to Std 10 level	27 706	885	27 149	617	54 855	1 502
2	Need to provide professional training for teachers with Std 10 but without teaching qualifications	1 700	640	4 710	2 754	6 410	3 394
3	Need to provide a further 1-4 years tertiary training for teachers with Std 10 and teaching qualifications	5 592	6 934	8 716	10 241	14 308	17 175
4	None[1]	310	852	415	1 256	725	2 108
	TOTAL	35 308	9 311	40 990	14 868	76 298	24 179

1) Teachers who fulfil the standards as indicated on p. 44.

In what follows, these two matters are quantified. Calculations have been based on figures given in the 1985 Annual Report of the Department of Education and Training and departmental estimates.

* The average number of pupils per teacher is given in Table 4.4. The ratio is high, particularly in primary schools. If it were to be reduced, say to 35:1, the Department of Education and Training would require approximately 5 600 additional primary teachers (13 900 for the self-governing states).
* The department estimates that its primary school population will increase by about 2,2 % and its secondary school population by about 7,3 % per annum. This will push up the primary school population by approximately 240 000, from 1,43 million in 1985 to 1,67 million in 1992. In the case of secondary schools, this will mean an increase of about 207 000, from 325 000 to 532 000.

TABLE 4.4

AVERAGE NUMBER OF PUPILS PER TEACHER IN BLACK EDUCATION IN THE RSA, 1985

Primary schools		Secondary schools	
Department of Education and Training	Self-governing states	Department of Education and Training	Self-governing states
41	47	32	33

The urgent need to create alternative educational opportunities for blacks, in addition to the existing formal system, is obvious from the foregoing discussion.

(2) Coloured education

Table 4.5 indicates the qualifications of white and coloured teachers serving in coloured education during 1985.

TABLE 4.5

QUALIFICATIONS OF TEACHERS IN THE SERVICE OF COLOURED EDUCATION IN THE RSA[1], 1985

Qualifications	Type of education		Total
	Primary	Secondary	
Without teaching qualifications with			
Std 8 or below	497	10	507
NTC/apprenticeship/technical qualification	7	85	92
Matriculation or senior certificate	747	430	1 117
Degree	46	582	628
Subtotal	1 297	1 107	2 404
Teaching qualifications with			
Std 8 or lower[2]	10 424	170	10 594
Std 9 with 2 years teacher training	192	18	210
NTC/apprenticeship/technical qualification	2	19	21
Std 10 with 2 years teacher training	4 083	817	4 900
Std 10 with 3 years teacher training	5 300	4 310	9 610
Std 10 with 4 years teacher training	607	428	1 035
Degree and diploma	325	2 649	2 974
Subtotal	20 933	8 411	29 344
TOTAL	22 230	9 518	31 748

1) The department employed 2 414 white teachers who are included in this table.

2) Categories exist with 2, 3 and 4 years of professional training.

SOURCE: 1985 Annual Report of the Department of Education and Culture, Administration: House of Representatives

If the same standards for qualifications as those used in the case of black teachers under (1) are applied, the situation during 1985 indicates the following:

* 71 % of all teachers failed to comply with the standard.
* This figure represents 72 % of all teachers in primary schools, and 68 % of those in secondary schools.

The immediate training needs of these teachers are set out in Table 4.6. The following three teacher training needs are indicated:

* Additional schooling for those teachers who do not have Std 10 - 11 122 primary and 302 secondary teachers,
* Professional teaching qualifications for those teachers with Std 10 only - 793 primary and 1 012 secondary teachers,
* Additional tertiary training for those teachers with both Std 10 and a professional qualification - 4 083 primary and 5 127 secondary teachers.

The pupil-teacher ratio was much more favourable in coloured than in black schools - 26:1 in primary and 19:1 in secondary schools.

TABLE 4.6

IMMEDIATE TRAINING NEEDS IN COLOURED EDUCATION IN 1985

Group	Type of immediate training need	Training needs of		Total
		Teachers in primary schools	Teachers in secondary schools	
1	Need to bring all teachers with inadequate schooling up to Std 10 level	11 122	302	11 424
2	Need to provide professional training for teachers with Std 10 but without teaching qualifications	793	1 012	1 805
3	Need to provide a further 1-4 years tertiary training for teachers with Std 10 and teaching qualifications	4 083	5 127	9 210
4	None[1)]	6 232	3 077	9 309
	TOTAL	22 230	9 518	31 748

4.3.2 Adult education to bridge the gap between literacy and Standard 10

The Science Committee of the President's Council (1984, pp. 133-134) has this to say on the need for education to bridge the gap between literacy and Std 8 level:

"A Standard 8 level of schooling is the minimum requirement for entry into training for most skilled occupations. In 1980, however, only 15 % of the total population ... had a level of schooling of Std. 8 or above. This group included 53 % of all Whites, 22 % of Asians, 9 % of Coloureds and only 5 % of Blacks. Apart from those attending school fulltime, less than 10 % of those eligible to study for the purpose of a Standard 8 qualification do so through non-formal education. In 1980, there were between 330 000 and 380 000 Blacks who ..... had completed primary school but had not completed Standard 8."

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1) Teachers who fulfil the standards as set out on p. 44.

The extent to which correspondence colleges fulfil this learning need is indicated in Table 3.1 and in Appendix F. Many blacks, however, find the courses difficult, particularly because their restricted conceptual development and demands of the language medium prove to be handicaps.

4.3.3 Training trainers serving in industry

The HSRC Report, The use of radio and television in education and training (1984, p. 29) describes this need as follows, based on data obtained from the National Manpower Commission:

"In the private sector there is a very urgent need for trained trainers in the different industries. It appears from a recent investigation that only 16 % of the trainers (from a group of approximately 14 000) had any educational background and that 56 % of them had Std 8 as their highest educational qualification."

In addition to training trainers for industry, the Science Committee of the President's Council (1984, p. 181) also mentions the need for para-professional community educators and aides to organize non-formal community-based education in black communities. They would cover such subjects as flower-arranging, cake-decoration, garden-layout, interior decorating and car repairs.

4.3.4 Common occupational and general life skills in the work situation (mainly in-service training)

The types of training considered here are mainly those that feature National Manpower Commission and National Training Board involvement.

As regards the nature of this training, it features the following subdivisions:

* Training for occupational skills and training for general life skills.

* On-the-job training and off-the-job training. The term on-the-job training is used for in-house training and off-the-job training is training elsewhere e.g. by such external agencies as educational institutions.
* Employer-specific requirements and general requirements based on common learning needs in a number of related enterprises such as the building and engineering industries.
* The nature of the work, as discussed below.

In the case of classification according to nature of the work, the following points seem to indicate the type of learning needs in question:

* Supervisors whose jobs mainly entail dealing with interpersonal relationships.
* Administrative staff/clerks, of whom particular office skills are demanded.
* Technical personnel at the level of apprentices and learner-technicians who need training in the relevant theories to obtain formal qualifications.
* Technical personnel who function as operators/semi-skilled workers and need training in special skills.
* Education in community administration for employees of local authorities.
* Education of employees in the functioning of the private sector and the role played by labour and trade unions, inter alia.
* Farm labourers (about 1,3 million, according to the Science Committee of the President's Council, 1984, p. 174).
* Illiterates functioning in other unskilled occupations.

This heading could perhaps also include the common learning needs of small business owners.

To indicate the need to some extent, we could mention that between 1,25 million and 1,75 million employees were trained by in-service training programmes during 1980/81 - this represents some 20 % to 27 % of the economically active population. State subsidies in the form of tax concessions were granted for the purpose of training 400 000 employees (Science Committee of the President's Council, 1984, p. 137). The figures below indicate the number of employees trained annually in terms of the subsidy scheme since 1983 (Annual Report of the Department of Manpower, 1985).

1983	505 229
1984	548 076
1985	425 232

CHAPTER 5

5. SUMMARY AND RECOMMENDATIONS

5.1 SUMMARY OF THE CURRENT SITUATION IN VIEW OF THE NATURE OF DISTANCE EDUCATION

The present situation as discussed in Chapters 2, 3 and 4 is summarily reflected in Table 5.1. The identified learning needs are juxtaposed against the institutions that supply distance education to the various target groups. It appears that the only two needs to which distance education does not contribute are the need for general literacy and the need for trainers in industry.

It also appears that, although distance education institutions are well established in the RSA, there is a need for greater co-ordination and further didactic grounding of practices. In view of the discussion, distance education should be making a larger contribution towards solving educational problems in South Africa than is presently the case.

The following perspectives were mentioned which could make a positive contribution towards informed assessment of distance education:

* Distance education in the usual sense of the word should be distinguished from contact education, where independent study plays a significant role, that is, where distance education methods are involved as indicated by Area (b) of Diagram 1. This introduces the possibility of incorporating some of the advantages of distance education in contact education, and vice versa.
* If we were to choose between operating forms for distance education institutions, privatization of distance education raises the matter of accreditation of institutions and courses.

TABLE 5.1

SUMMARY OF EXISTING LEARNING NEEDS, TARGET GROUPS AND THE EXISTING INFRASTRUCTURE FOR DISTANCE EDUCATION

	Basic learning needs	Target group	Institutions at present providing in this need over a distance
A	Need for general literacy	Adults	
B	Need for language tuition to acquire fluency in specific languages	Black scholars and students Black adults Whites	SABC radio and television services
C	Need for conceptual development (compensatory teaching)	Toddlers, scholars, students and adults	SABC radio and television services

	Developmental learning needs	Target group	Institutions at present providing in this need over a distance
D	Further training and in-service training of teachers	Serving teachers	CEFT's, Vista, Unisa, Technikon RSA
E	Literacy - Std 8 Std 8 - Std 10	Adults Adults	Correspondence colleges
F	Training of trainers in industry	Serving trainers	
G	Common occupational and general life skills in the work situation (mainly in-service training)	Employees in the work situation	SABC radio and television services Technikon RSA Technical College of South Africa

* In comparison with contact education, distance education

  - is usually less well grounded (at school level),
  - has a complicated planning and control structure,
  - has higher fixed costs per course and a lower variable cost per student,
  - lacks personal contact between presenters and students, and
  - presents various problems as regards evaluation of the students.

* Distance education should be regarded as a dynamic system, consisting of a great variety of interdependent components, interacting with the environment by way of its decision makers for the purpose of optimal satisfaction of selected learning needs.

Distance education in South Africa involves the following three major groups: distance education institutions, the SABC, and the press.

Distance education institutions deal with some 300 000 students at present. Nearly two-thirds of these are taking formal courses or courses which are linked with formal education. Of the total of 300 000 students, about two-thirds are registered at commercial correspondence colleges, and one-third at statutory institutions which issue formal certificates, diplomas or degrees. These institutions provide in the need for university education (Unisa), teacher training (CETTs, Vista), vocational tertiary education (Technikon RSA), vocational secondary education (Technical College of South Africa), training which leads to industry-related professional diplomas (correspondence colleges), academic and technical secondary education (correspondence colleges) and training of various kinds (correspondence colleges).

The SABC has implemented a wide range of educational radio and television services since 1984. Plans are afoot to provide in a broad spectrum of learning needs of all population groups, but particularly those of the black population. In addition, the SABC provides school radio services to black schools. These programmes are not always co-ordinated with the actual teaching to the extent that is desired. The services of the SABC have well-defined goals, and are also supported by ongoing research.

The press is active in the field of distance education without their actually identifying the practice by name. This medium covers a wide field, ranging from close contact with formal education (for example, in provision of textbooks), through non-formal teaching (professional journals, for example) to the informal level and dissemination of information.

5.2 RECOMMENDATIONS WITH REGARD TO IDENTIFIED LEARNING NEEDS

Table 5.1, referred to previously, indicates to what degree distance education is already providing in some of the identified learning needs. In addition, it is recommended that the following aspects pertaining to learning needs touched on already, or indicated in this study be further researched or investigated to determine how, and to what extent distance education can make a further contribution in each case. One important factor which will have to be taken into account in this respect is the unique nature of the cost implications of distance education. This unique quality has already been indicated under 2.4.3 of the report, and is also touched upon in 1.2.1 of Appendix D. The implication is that distance education is characterized by certain aspects of financing which are peculiar to it, and that these have to be considered when such systems are planned.

The following are specific recommendations with regard to identified learning needs:

5.2.1 Recommendations with regard to basic learning needs

(1) Adults' need for general literacy

The possibility of using radio and/or television in conjunction with printed matter for the purpose of teaching those who are generally illiterate to read, do arithmetic (and even to write) should be investigated in view of such programmes overseas.

(2) Need for language tuition to acquire fluency in specific languages

It appears desirable to introduce further radio and/or television programmes for the purpose of helping to develop a greater range of spoken language skills in certain groups. As indicated under 4.2.2, the need is

* that everyone should be able to speak at least one official language fluently, and
* that whites should be able to speak at least one black language fluently.

The SABC is already presenting programmes for the specific purpose of teaching whites to speak black languages, and is also co-operating with the University of Stellenbosch in designing a set of programmes for teaching basic English and Afrikaans in the workplace.

5.2.2 Recommendations with regard to developmental learning needs

(1) Need for in-service teacher training

Investigation of the possibility of presenting non-formal in-service training for black and coloured teachers by means of distance education is also recommended.

(2) Need for improving the quality of formal education in cases where teachers are not fully qualified

Various factors acting in combination impair the quality of formal teaching in black and coloured schools. These include pupils' inability to speak an official language fluently, inadequate conceptual development and unqualified and underqualified teachers, (learning needs B, C and D).

The situation can be remedied to a large extent by substituting or supplementing didactically structured manuals similar to those used for distance teaching for school textbooks. Further details of this recommendation are contained in Appendix I.

(3) Need to train trainers in industry

It should be possible to train trainers for industry by means of distance education courses presented by the Technikon RSA and/or correspondence colleges.

Another recommendation attendant to this originates from a recommendation by the Science Committee of the President's Council (1984, p. 181) that regional resource centres be established in disadvantaged communities for "the purposes of training paraprofessional community educators and aides, research on and development of programmes, and the dissemination of information to local agencies that provide non-formal community based education".

If this recommendation were implemented, distance education could make a valuable contribution to the training of community educators and aides, and the implications of this should be investigated.

(4) Need for common occupational and life skills that are important in work situations

Workers' common learning needs could be identified at all or a certain number of workplaces for the purpose of determining to what extent these workers could be involved in distance education. Such learning needs have already been identified and included in training courses by institutions like the Building Industries Federation of South Africa (BIFSA) and the Steel and Engineering Industries Federation of South Africa (SEIFSA).

Further identification of collective learning needs could be made by comparing the aims of existing training schemes. The classification of these learning needs (aims) could form a framework for structuring distance education courses. This in turn could pave the way for systematic evaluation and validation of courses, and accreditation of employers' training divisions. A further possibility would be awarding certificates to successful candidates in an area where occupational skills have not as yet been systematized. In this way state subsidization of in-service training could be rationalized to a greater extent.

The fact that non-formal education owes much of its viability to its ability to adapt rapidly to immediate needs is an important factor which should be noted when a system of this kind is being considered. A distance education system linked to accreditation and certification would impose a relatively rigid structure on aspects of in-service training, and for most practical purposes, endow it with the characteristics of a formal educational system.

Distance education courses of the nature mentioned under this heading could be designed for presentation in co-operation with local trainers. In this case the role of trainers would more specifically be that of organizer and controller of training, while the responsibility for didactic presentation would be included in the design of distance education packages or manuals. Courses could also be supported by contact sessions and group discussion in the workplace. Certain of the existing SABC programmes, as well as those still in the planning stage could be integrated in a training system of this kind. A similar suggestion was made under (2) above with reference to formal teaching in black and coloured schools.

As regards this suggestion, mention must be made of a programme described by Joseph and De Milanesi (1982). This programme makes use of distance education to equip employees in Latin America and Spain with accountancy and business administration skills they require in the course of their occupations. This is done by making use of employers' in-service training divisions.

5.3 RECOMMENDATIONS IN CONNECTION WITH RELATED MATTERS

Chapter 2 indicated that distance education has not yet achieved maximum exploitation of its full potential for a variety of reasons. In view of this discussion, investigation of the following is recommended:

5.3.1 Possibility of creating a national forum for exchange of ideas on distance education

A national forum for the exchange of ideas on distance education seems to be a necessity. Institutions presenting distance education would naturally take the organizational initiative in such a move. A body of this kind could play a more comprehensive role in setting standards for distance education courses than the Correspondence College Council is able to do at present in the case of correspondence colleges.

5.3.2 Introduction of formal training in distance education

Tutors (lecturers) involved in presentation of distance teaching in South Africa probably total 3 000 to 4 000. As far as is known, only Unisa offers formal study in distance education as a subject as option of its Diploma in Tertiary Didactics. There is therefore a need for more formal training in this connection. Such training, whether as a university course, or a specialization option of didactics, would also increase the academic status of distance education.

5.3.3 Establishment of a specialist committee on distance education

Recommendation 9.8.1 of the Science Committee of the President's Council (1984, p. 184) proposes that an advisory body for macro-policy formulation on structuring a comprehensive system of education be established, and that non-formal education be included. In practice this amounts to including a specialist committee in the committees of the South African Council for Education (SACE) following consultation with the Universities and Technikons Advisory Council (UTAC).

It is recommended that it be established whether a similar arrangement would not be desirable also in the case of distance education - that is, that a specialist committee for distance education be nominated.

Further to this, it is recommended that a macro-plan be worked out for utilizing distance education, together with other forms of education and training, to establish a total strategy for the purpose of solving educational problems in the RSA.

5.3.4 Integration of radio and television with printed matter as distance teaching media

Problems attending the integration of radio and television with printed matter as distance teaching media in South Africa should be investigated.

5.4 PRIORITY OF RECOMMENDATIONS

The sequence of the learning needs in Appendix H could be regarded as indicating a possible order of priority. Differences of opinion on the order of these priorities are very likely, possibly determined by diverse views about overall educational requirements and their political and socio-economic significance.

Most of the recommendations are given as pointers for further investigation or attention. Recommendation 5.2.2(2), concerned with improving the quality of teaching where teachers are not adequately qualified is more concrete however, and has been formulated in greater detail in Appendix I. In view of current problems surrounding black and coloured education, the work committee considers this a priority, and recommends that the possibility of its implementation be investigated.

APPENDICES

APPENDIX A

DISTANCE EDUCATION FOR GENERAL LITERACY

The topic of distance education for the purpose of general literacy has merely been touched upon, and most likely will have to be the subject of a separate study.

As is widely accepted, general literacy consists of three skills: reading, writing and arithmetic. Reading and mental arithmetic do not require manual skills, which are essential in the case of writing and long mathematical calculations.

The following are programmes associated with, and examples of distance education systems for literacy:

1. SESAME STREET

Sesame Street is a well-known television programme devised in the United States for the purpose of unsupervised viewing by preschool children in their homes. The programme aims to teach them certain reading and arithmetic skills, as well as sorting and classifying skills.

Nine hundred and forty-three children were monitored in the United States, and the findings indicate that their skills increased according to the degree to which they watched the programmes.

2. ISRAEL

Dr P.J. van Zyl, member of the work committee and head of the SABC Department ERTV1 recently visited Israel, where he encountered a programme designed for the purpose of teaching illiterates to read. He is to compile a report for the SABC in this connection.

3. ACCELERATED CHRISTIAN EDUCATION

This American system of contact education is based on didactically structured illustrated programme booklets which pupils work through at their own pace. Beginners use the booklets from their ninth week in school. Although the system was designed for contact education, by its very nature it constitutes independent study, and with the necessary modifications such a system could be used for adult distance education.

The system is used, inter alia, by the Hatfield Christian Church in Pretoria, where 160 pupils from Grade 1 to Std 9 are accommodated. Supervisors are not necessarily qualified teachers.

4. THE ACCION CULTURAL POPULAR (ACPO) (SCHRAMM 1977, pp. 244-250)

ACPO is a "radio school" established by a priest, Father Salcedo, in Colombia with the aid of UNESCO and other agencies and countless volunteers from small villages.

The "school" has no formal organization at student level, but consists solely of groups of 6 to 10 people who decide to study. Groups generally live in one area, and sometimes consist of a single family. They meet under the supervision of a voluntary helper (auxiliar), who is usually untrained. He organizes sessions, obtains a radio and arranges the times. He then acts as group leader until such time as a member of the group takes over.

There is a basic course for adult literacy. It consists of daily half-hour broadcasts over a period of six months. Twenty-five percent of the programme's students follow this course. The progressive course, which extends over two years, is for literates who have not had a complete primary education. It covers five subjects (health, literacy, mathematics, economy and work, and spirituality). The course extends over two years and is presented during an hour-long broadcast every day. Sixty percent of the students follow this programme.

ACPO's third course, the complementary course, extends over three years, preparing students to complete full primary schooling and write a formal examination. Fifteen percent of ACPO's students are registered for this course.

Support for the teaching programme consists of devoting a further quarter of the broadcasting day to informal educational programmes which share the aims of the teaching programmes. Further back-up is provided by approximately 600 000 textbooks distributed annually, 70 000 copies of the weekly newspaper El Campesino and about 300 000 copies of books for general reading, printed by ACPO's own press.

The newspaper is compiled to suit the students' reading abilities. It has an eight-page monthly supplement, which folds into a 32 page booklet intended for the complementary course.

The number of schools grew from 300 in 1950 to 14 000 in 1960 and 20 000 in 1970, reaching the peak of 28 000 in 1965. In 1968 the students numbered 167 000. The newspaper has a circulation of 70 000 paying subscribers per week.

On average 80 000 to 90 000 illiterates registered for the basic course between 1960 and 1968. About half wrote the examinations, and about 70 % of these passed. Student numbers for the progressive course averaged 100 000, with 50 % writing the examination and 75 % of these passing.

APPENDIX B

DISTANCE EDUCATION MEDIA WHICH MAY BE UTILIZED IN THE RSA

Computers

Video discs (video screen coupled with a diskette which carries both image and sound and offers interaction possibilities with a small computer)

Television

Video cassettes

Radio

Audio cassettes

Films

Slides/film-strips

Tape-slide series

Systems that obtain information from computers for display on video screens. Linkage may take place over the air or by cable. Terminology used for these systems is not standard: apart from non-standardized names for the different types, there are also various trade names. The following are available in South Africa:

Teletex: A service provided by Posts and Telecommunications. It comprises distance links by cable or over the air between correctable text data and word processors.

BELTEL: Video access by telephone to information systems.

Teledata: Television access to information systems.

Teleconference

Videoconference

Study manuals

Books

Periodicals, newspapers, pamphlets

Telephone

APPENDIX C

COMPREHENSIVE COGNITIVE FRAMEWORK FOR DISTANCE EDUCATION[1)]

Assessing the wide-ranging role distance education could play in informal, non-formal and formal education, demands a theoretical cognitive framework, one which can accommodate a great variety of diverse learning needs on the one hand, and on the other also a variety of educational systems, programmes/curricula, strategies and media. It is possible to construct a cognitive framework that can be operationalized for this purpose, if distance education is considered in terms of a multidimensional communication network model. Diagram C.1 indicates the most important components of, and processes and links within such a multidimensional communication system for distance education.

Key concepts expressed in Diagram C.1 can be summarized as follows:

1. Various agencies (including universities, colleges, technikons, the SABC and private enterprises) could provide distance education, either separately or in co-operation with each other. The Diagram presents these agencies as decision-making modules (A....n) which function as administrative-organizational, academic-educational, and financial units within an operational environment as open systems.

2. In the operational environment various population groups (language, cultural, socio-economic, age, etc.) with varying learning needs and expectations are encountered. These learning needs are never static, but dynamic, and as circumstances change in the operational environment, new and extended learning needs are experienced. Distance education systems to satisfy these learning needs grow out of the operational environment in so far as entrepreneurship, funds, legislation, etc. are concerned.

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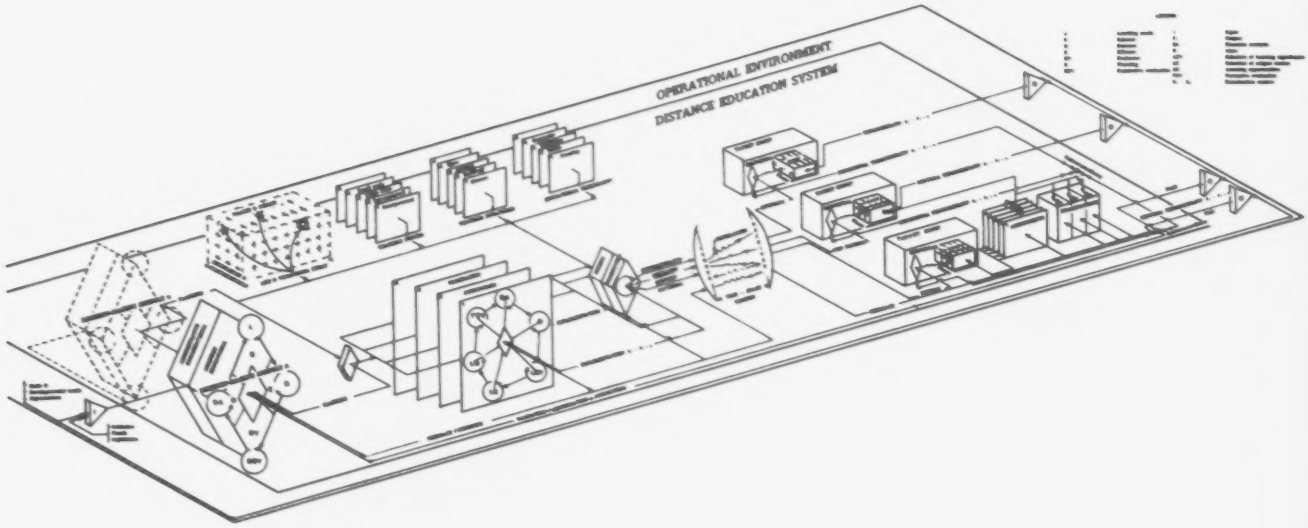
1) This appendix was contributed by Prof. P.G. Jooste, member of the committee.

DIAGRAM C.1

THEORETICAL COGNITIVE FRAMEWORK FOR DISTANCE EDUCATION



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All inputs from the operational surroundings are made by means of the decision module. It functions as the entrepreneurial unit of undertaking and fulfils the role of detector, selector, effector and evaluator.

3. Identification of and planning to provide for learning needs do not constitute a single-event task of the decision-making module (or parts thereof). They form part of a process of dynamic events which are worked through repeatedly and cyclically in various modular components of the system - from situation analysis up to and including summational evaluation. Adaptations and modifications (as in the case of design and implementation of educational programmes for instance) must be made continuously in terms of changing circumstances within and without the system, and of feedback from target groups/learners.

4. Once the learning needs of a particular target group have been identified in order of priority, educational programmes/curricula are planned and developed in order to satisfy these learning needs along one or more structural educational channels (informal, non-formal and formal) during various educational phases* (1: prebasic, 2: basic, 3: post-basic) and at various educational levels* (such as degree or standard). Programme and curriculum development also proceed according to a cycle in which key phases are linked via the decisionmaking module to the preceding cycle for the identification of learning needs. During programme development and curriculum planning, emphasis then falls on a more detailed articulation of learning needs for the purpose of setting up long and short-term educational goals, a selection of learning experiences, study material and learning opportunities, and, with this, formative evaluation of such choices in the light of educational goals and eventual feedback from learners.

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* Indicated in Diagram C.1 in the target group modules.

5. As Diagram C.1 indicates, not only does suitable content for study material have to be selected from the information matrix (knowledge and insight, life and occupational skills, values and norms) during programme development and curriculum planning, but selections must also be made as regards a suitable teaching system (type: large-scale/small-scale; inter-/intrapersonal), teaching strategies and teaching medium.

6. Programme development and curriculum planning are followed by implementation (over time: $t_1 \ldots t_{1+n}$), which involves coding, production and transfer/despatch/broadcast of study material (as differentiated messages intended for identified recipients/target groups/learners) and support material (such as workbooks, assignments and examples).

7. Various hindrances in the distance education network hamper transfer of these intentional messages. These hindrances include poor coding, erroneous selection or ineffectual utilization of communication channels and media, and external circumstances (e.g. postal delays). Resistance/aloofness/alienation, environmental disadvantages and so forth on the part of potential recipients/learners can also have a hampering or disturbing effect on the transfer of messages. In view of the time-space tension in the system, it is absolutely essential that sustained efforts be made to optimize time-space convergence between sender and recipient by using suitable communication media.

8. Each target group consists of a number of individuals. Each individual has the mnemonic ability (which includes capacities to decode, to interpret, to experience, to process, to store, to recall, to encode) to learn from messages transmitted along a particular educational channel with him as their destination. It is also possible that one and the same individual may simultaneously belong to more than one target group.

9. The informal educational channel could be used for instance to transmit messages intended to supplement the early learning experiences of pre-school children, to prepare them for school, or to enrich the life experience of young people and adults in an academic field, or to stimulate them in leisure-time activities which require a minimum of scholastic training.

The non-formal educational channel could be used for example to carry messages directed at literacy, in-service training, retraining and so on. This is chiefly intended for those who have not been exposed to formal education, have perhaps dropped out early, or otherwise need scholastic upgrading for the purpose of entering formal education structures.

Education through the formal educational channel is planned education, and features controlled direction, progressive testing and certification.

As regards the educational channels, Diagram C.1 also indicates the possibility of vertical and/or horizontal flow through, and with this changing (retirement/entry) from one educational structure to another and changeover from one study phase, study level and/or direction of study to another. Examination, certification, validation and accreditation are important facets of non-formal and formal education which regulate retirement/entry during this process.

10. When distance education is effective, it satisfies learning needs, and dynamic changes occur in learners. At the same time new learning needs and expectations arise, which in turn could be considered inputs on the part of decision-making modules for distance education systems.

APPENDIX D

TYPING OF EXISTING DISTANCE EDUCATION SYSTEMS ACCORDING TO DIDACTIC MODELS

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1. TYPING OF EXISTING DISTANCE EDUCATION SYSTEMS

This Appendix is a summary of attempts by various authors to type distance education systems. The term "models" is used in a variety of ways determined by the context.

1.1 Keegan (1980) distinguishes three variables which type a distance education system:

* Technical media utilized by the system,
* institutional type (private or state institution)[1], and
* the didactic model used, according to the provision of two-way communication and the possibility of attending seminars.

Keegan confines his discussion to didactic models. He distinguishes three types:

* The correspondence model, where the institution dispatches learning materials and maintains contact mainly through assignments.
* The Central European model which sends out learning materials and conducts a minimum of correspondence with students, but where tutors keep abreast of student progress by means of compulsory fortnightly evaluation and consultations.
* The Open University model, where the learning materials are sent out and followed up with a variety of activities such as radio and television broadcasts, student groups, regional office contact, study centres, tutors/consultants, summer schools, etc. Some of these are optional, and some are compulsory.

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1) The institutional types of distance education agencies have already been discussed under 2.3 of this report.

In a later article (Keegan, 1982) he names a fourth, the integrated model, which consists of a parallel presentation of distance and contact education by the same lecturer. This model is encountered in Australia, India and Latin America.

1.2 Smith (1980) and Holmberg (1983 (a)) classify the organizational procedure for course design according to various models.

Smith distinguishes five models, but Holmberg reduces these to two and ignores Smith's "academic intuition model" (where the academic is left to himself to design the course).

Holmberg's two models are the following:

1.2.1 The course-team model

The essential feature of this model is that courses are designed by a team of specialists. In its most extreme form it functions entirely democratically: the academic and other members of the team have an equal say. This could lead to a great deal of tension and wasted time before consensus is reached, but does have the effect of strongly emphasizing didactic design.

The Open University in the United Kingdom is the best example of this approach. Teams consist of academics, BBC television and radio personnel, educational technologists, audio-visual specialists, editorial staff and others. Members meet for periods ranging from two to three years for the purpose of putting together a course that is generally used for at least five years.

Athabasca University (Canada) and Deakin University (Australia) also use the course-team model, but in a modified form. At Athabasca the team consists of academics who are responsible for the content of the course, didactic experts who ensure effective teaching/learning designs, graphic artists responsible for illustrations and design, and evaluation specialists for designing examinations and other forms of evaluation, course evaluators who evaluate the whole course, and a library assistant to advise on sources and provide source material.

Comparison of costs per course between the Open University and Athabasca is interesting. Wagner (1977) calculated that a new course carrying full credits at the Open University cost on average 436 000 Pounds sterling in 1976. Compared to this, Snowden & Daniel (1980) indicate that the cost per course at Athabasca was $100 000 in 1979/80. For the purposes of comparison with the Open University, they calculate the cost of a course at Athabasca as two-fifths the weight of an Open University credit course. The comparable cost figures are therefore: Athabasca, $100 000, Open University, $315 000.

1.2.2 The author/editor model

This model implies that the academic has the assistance of a didactic adviser while the course is being compiled. The intention is for them to design and work jointly on the course from the outset.

Smith (1980) gives as an example the practice at Murdoch University and Darling Downs Institute of Advanced Education (both in Australia), where didactic advisers assist academic staff throughout during the design of courses. Academic staff have the final word on the format and content of courses.

2. EXAMPLES OF THEORETICAL POINTS OF DEPARTURE FOR COURSE DESIGN

What follows is intended to merely indicate the nature of theorizing on the topic.

2.1 As regards the theoretical point of departure of course design, Holmberg (1981) bases his approach on a model of didactic dialogue. He considers this the most essential element in the design of distance education systems. This reduces the question of how a distance education course should be designed to the statement that the design must be such that there is continuing dialogue between presenters (authors) and students by way of course material that has been prepared in advance. This must be supplemented with actual contact through, for instance, personal contact, telephone conversations, letters or a class situation.

He is strongly in favour of an informal style of writing that includes pronouns like I, you, your, we and me. Students must be given a sense of personal involvement with the presenter and the institution.

2.2 Baath (1979) discusses a number of educational theories for contact education with a view to their suitability for distance education. These will not be discussed here. Only the summary provided in Epistolodidaktika (1980:1) is given:

Teaching models	Emphasis on		Desirability of telephone or face-to-face contact
	Teaching material	Two-way communication	
Skinner's	***	*	*
Rothkopf's	***	*	*
Ausubel's	***	*	*
Egan's	**	**	*
Bruner's	**	**	**
Roger's	*	***	***

(An explanation:
*** means great emphasis on, or great need of;
* means little emphasis on, or little need of.)

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APPENDIX E

ASPECTS OF THE DIDACTIC POTENTIAL OF PRINT, RADIO AND TELEVISION IN DISTANCE EDUCATION

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1. PRINT

* Language is the perceptible form in which man gives expression to his experiences and thought (including the academic) for the purposes of communication. Writing (print) is a permanent record of language, but with this distinction; the written word is more formal and correct from a language point of view than is the spoken word.
* In order to decode print, the only general requirement is literacy. As far as physical environment is concerned, the only necessity is light.
* Print is a familiar, inexpensive, portable and easily despatched mass medium. It can be stored systematically, is accessible by indexing and is maintenance-free.
* The academic knowledge and research of centuries has been preserved in this form for posterity, and it is therefore a tried and tested academic and didactic medium.
* Print can be highly structured didactically. It can also be compiled in such a way that students are able to interact in various ways with the material.
* Pictures and diagrams can be used to illustrate passages of print. They add visual dimension to the written word.
* The advent of computers and word-processors has enabled authors to manipulate written records to an increased extent. This facilitates the revision of printed matter.
* Encounters with the written word familiarize students with academic language and style, and help them to express themselves accordingly.
* Printed matter in textbooks is often practically identical to the format used when testing the academic knowledge/insight of students at all levels during written examinations.

2. RADIO (AND SOUND CASSETTES)

* Radio is capable of near-perfect reproduction of the spoken word. This means that it gives a faithful impression of nuances, pronunciation, emotion, etc., a quality which is not possible with the written word.
* The "message" can be communicated to the whole world immediately and inexpensively: radio receivers have become relatively cheap, they can be obtained in portable form and they are fairly maintenance-free.
* As in the case of the spoken word, radio is characterized by the fact that streams of passing ideas present themselves to the listener who normally has no means of recording these permanently for later reference.

  The sound cassette has in part overcome this deficiency. Cassette players are relatively cheap. Unisa can provide students with audio cassettes at an estimated cost of R1,50 per C-60 cassette, without students having to return the cassettes after use.
* From a didactic point of view for example, radio is potentially able to make the following contributions:

  - Where sound is essential, as in the case of pronunciation etc, when teaching a second language, or in the instance of music, radio is capable of serving a special purpose.
  - Radio has the advantage of being a mass communication medium which does not demand general literacy of its target group.
  - When radio is used for distance education, well-illustrated printed matter can partially compensate for the absence of images. Educational packages consisting of a radio talk and illustrated printed matter are familiar components of the Open University where they are known as "audio-vision packages".
  - Radio can enable presenters to give "lectures" to distance education students. The desirability of this practice is dubious however, except in the case of specific purposes. Examples of these include the need to cover a wide field in outline, enabling students to acquire a particular perspective before they begin studying printed material, or summarizing material they have studied.
  - Answers to self-evaluation questions can be given and discussed.

- General comments on written assignments that students have submitted can be given in an informal manner. Such comments can be more personal than written comment.
- Motivational talks can do a great deal to reduce the loneliness of distance education. Such communication can be informal, making students feel they are part of the educational institution and its staff.

According to Grundin (1984), the Open University found that the use of radio declined rapidly between 1978 and 1983; as a result only two out of ten new courses make use of radio, and less than 50 % of the students listen to the programmes. About one-third of the students listen indirectly, mainly by way of recordings they have either made themselves or borrowed. Open University radio broadcasting times are before 07h00 and after 23h20.

The decrease in radio broadcasts is coupled with a large increase in use of audio cassettes which are dispatched together with printed study material.

Grundin was able to classify some 90 % in a sample of 70 Open University radio programmes according to one or more of the following headings:

- "lecture or 'radio talk' by Open University academic or external expert, without accompanying visuals or course material;
- interview/discussion, e.g. a member of the Open University course team interviewing one or more external experts and discussing various topics with them;
- source material in the form of talk, usually with comments from an Open University academic or expert (such source material could be a sound recording of historic interest, or a dramatization, or simply of spoken language to be analyzed by the students);
- source material other than talk, e.g. music or environmental noise, with comments;
- radio-vision, i.e. a talk illustrated by some kind of visuals (e.g. printed diagrams and pictures, or slides)."

The material was divided more or less equally among these headings, and between 15 % and 20 % fell into each category.

Grundin reaches the following conclusion:

"Current experience in the Open University shows very clearly that there is a place for audio material in a wide variety of courses, particularly if co-odinated with visuals (e.g. in printed form) as audio-vision packages."

Appendix E.1 indicates uses where the Open University considers radio suitable.

3. TELEVISION (AND VIDEO CASSETTES)

* Television is five to ten times more expensive than radio as regards both transmission and reception.
* Reception is confined more to urban areas, except where satellite transmission is used.
* It has the particular ability to faithfully portray reality (or representations of reality) by means of language (sounds), image and movement. Therefore it is able to give viewers true-to-life spectator experience they are unable to obtain in any other way, except through films.
* It can manipulate the visible and audible "reality" to an almost unlimited extent by enlargement, reduction, movement, delay, selection and mixture of sounds and images, etc.
* People find it particularly appealing.
* The fact that television allows spectators to experience reality is a source of particular didactic potential. Where necessary, television programmes can provide students with substitute spectator experience of reality, and fulfil the role of compensatory teaching. In this way the proper formation of concepts could be achieved before proceeding to a more theoretical level.
  The importance of this is underlined by stating that faulty conceptualization, lack of substitute experience and the shortage of qualified teachers all probably have equal status as major problems in black education in South Africa.

* Educational television programmes are watched also by a great many viewers who have not registered formally for tuition. The medium therefore has a greater non-formal/informal secondary effect than distance education has through printed matter.

* Bates (1984, p. 33) lists the following general strong and weak points of television for teaching purposes:

Good for:	Bad for:
Encouraging individual interpretation	Mastery learning
Stimulating creative thinking	Feedback/self-evaluation
Providing an overview or synthesis	Analysis (of processes or situations)
Narrative/story-telling	
Demonstrating continuous processes	Storage of information
Modelling learning processes	Reflection/deep processing
Raising awareness	Presentation of complex ideas
Developing skills of evaluation	Development of abstract thinking

* As in the case of radio, some of the deficiencies of television can be compensated for by the use of video cassettes. Bates (1984, p. 6) mentions that the Open University can provide a student with a 25-minute video cassette for 75p, provided the cassette is returned after use.

* Lipson (1977), quoted by Feasley (1983, p. 16), reported dramatic improvements in completion rates of correspondence courses after a regular television-broadcast back-up was initiated.

* The further didactic potential of television is well portrayed in Appendix E.2. The set of criteria is used by the Open University in the United Kingdom to determine whether sections of a course ought to be backed up by television material.

4. HOW SHOULD MEDIA BE COMBINED FROM A DIDACTIC VIEWPOINT?

In the traditional curriculum of formal education, students are mainly concerned with acquiring knowledge and insight, and these are tested during written examinations. Were the same aims to be set for a distance education system, the following could be said: In addition to the consultation and evaluation function of presenters/presenting institutions, a set of acceptable distance education media should at least have the following qualities:

a A language component
b Ability to fulfil a recording function
c Possibility of intellectual interaction if the learning aim is above the level of mere knowledge
d Ability to convey images, such as illustrations and diagrams

Diagram E.1 indicates the extent to which print, radio and television possess these qualities within a distance education set-up:

DIAGRAM E.1

Characteristic	Print	Radio	Audio cassette	Television	Video cassette
a	*	*	*	*	*
b	***		*		*
c	**		*		*
d	**			***	***

* Good
** Very good
*** Outstanding

In the event of having to select a single medium for distance education, this would presumably be print, Schramm concurs (1977, p. 276). Video cassettes would be the second option. Were it possible to opt for a combination of two media, print and video cassettes would be best able to complement each other.

When it comes to selection of media in a practical situation, three possible points of departure are likely to be considered:

* Maximize the contribution of print.
* Maximize the contribution of radio/television/cassettes.
* Decide on an optimal relationship between print and radio/television/cassettes on the basis of the particular educational potential of each.

In the first instance, the contribution of television/video cassettes would be limited to its particular ability to enable, for instance, spectator experience of reality, while that of radio/audio cassettes would be confined to those essential inputs the spoken word or sound is capable of, but which are impossible in the case of print.

Schramm (1977, p. 277) considers the following a typical approach:

"Big media will more often come into the planning or teaching process in terms of what they can contribute especially or uniquely rather than as general carriers."

In the second instance (which Schramm regards unlikely), print would be used for at least functions b and c, and would so be limited to textbooks (and assignments). Radio - and more particularly television (and/or cassettes) - would become the actual medium of instruction. This would largely resemble a class situation where the spoken word is the major medium of instruction, and textbooks are used primarily as a record. In terms of this approach, distance education is regarded as duplication of classroom events, but presented on television. Distance students watching in their own homes or in groups (perhaps at work) therefore form the class by sharing in the experience as spectators. To the degree in which the system is interactive (interactive educational television or IETV), they too become participants - that is, their situation approximates that of students in the classroom who are able to ask questions.

Educational television or interactive educational television compels presenters to be better prepared than for traditional lectures. In addition, the system makes it possible to place television (the most powerful audiovisual aid) at the disposal of the tutor. It is probably in view of this that the University of Maryland, in the United States of America, has chosen live IETV as the best medium of instruction, as reported by Coetzer (1985, p. 55). He also indicates that large academic agencies and companies or state-controlled institutions, where the use of sophisticated technology has become a daily requirement, are most successful at using IETV (p. 50).

In the third instance, it means that each medium is used where it can make an optimum contribution in a practical manner, as this derives from the characteristics of each medium as listed under 1 to 3, and the possibility of combining various media.

Naturally this discussion does not cover the whole range of factors which determine the choice. There are practical considerations which take precedence over didactic considerations, and in this event the functions of a medium have to be reduced or extended accordingly.

5. IN PRACTICE

In 1982 Tony Bates of the Open University (Bates, 1982(a)) investigated twelve distance education institutions known to be users of audiovisual media.

The Open University made far more use than the others of broadcasting services, the total being some 35 hours a week of television and 24 hours a week of radio.

Of the remaining eleven institutions, three regarded television as their principal medium: one (a school system) devoted more than ten hours to broadcasting time, and the other two less than five hours. The remainder regarded print as their principal medium. None of the institutions used more than five hours radio time.

Bates concludes that there is a distinct movement away from broadcast services in distance education, and believes this can be ascribed to the following factors:

* Broadcasting organizations are not attached to the distance education institutions, resulting in inadequate control over broadcast material.
* It is difficult to negotiate good broadcasting times, since target groups are relatively small - none of the institutions had more than 10 000 students taking any specific course, and some target groups were as small as 500.
* Academics mistrust the academic quality of material that is broadcast.

APPENDIX E.1

APPROPRIATE USES OF RADIO IDENTIFIED BY A COMMITTEE OF THE OPEN UNIVERSITY

RADIO[1)]

1 To provide remedial tutorials, or some other form of tutorial, based on feedback.

2 To provide corrections, alterations or up-dating of material, where print remake budgets are limited, or where print cannot reach students quickly enough.

3 To bring to students primary resource material, i.e. recordings which, through careful editing and selection, can demonstrate principles covered in the units. This material may be used in a number of ways, for example

(a) recordings of naturally occurring events, e.g. political speeches, children talking, concerts or performances, talks previously recorded for other than Open University purposes (e.g. Reith lectures), eye-witness interviews at historical events;

(b) to provide students with a selection of sources of evidence to analyze.

4 To bring to students the views or knowledge of eminent people who can condense in an interview, or be edited afterwards, to provide the essential points, which in written form may be more complex or lengthy.

5 To record specially the voices of people who have not been recorded before, but whose contribution to the course would provide a unique experience (e.g. famous poets reading their own work, civil servants talking - perhaps anonymously - about their role in decision making).

6 To change student attitudes

(a) by presenting material in a novel manner, or from an unfamiliar viewpoint;

(b) by presenting material in dramatised form, enabling students to identify with the emotions and viewpoints of the main participants.

7 To bring works of the performing arts into existence, by a performance direct into the students' own home; and to demonstrate methods or techniques of drama or music, through performance.

8 To provide the student with a condensed argument, in lecture form, which may

(a) reinforce points made elsewhere in the course;

(b) introduce new concepts not covered elsewhere in the course;

(c) provide an alternative view to that presented in the correspondence text and/or television programmes;

(d) analyse material contained elsewhere in the course, with particular regard to specially written broadcast notes or television programmes;

(e) summarise the main points of the block or course as far as it had gone, providing integration and orientation, and

(f) draw on quotation, recorded information, interviews, etc., as evidence in support of (or against) the argument.

9 To enable students to perceive that different points of view exist and observe ideas being challenged, through discussions and interviews.

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1) Quoted by Schramm, 1977 (pp. 97, 98)

APPENDIX E.2

CRITERIA APPLIED BY THE OPEN UNIVERSITY TO DETERMINE WHETHER A COURSE SHOULD BE SUPPORTED WITH TELEVISION MATERIAL

TELEVISION[1)]

Science/ Technology/ Psychology	1	To demonstrate experiments or experimental situations, particularly
	(a)	where equipment or phenomena to be observed are large, expensive, inaccessible or difficult to observe without special equipment;
	(b)	where the experimental design is complex;
	(c)	where the measurement of experimental behaviour is not easily reduced to a single scale or dimension (e.g. human behaviour); and
	(d)	where the experimental behaviour may be influenced by uncontrollable but observable variables.
Maths/ Science/ Technology	2	To illustrate principles involving dynamic change or movement.
	3	To illustrate abstract principles through the use of specially constructed physical models.
	4	To illustrate principles involving two-, three-, or n-dimensional space.
	5	To use animated, slow-motion, or speeded-up film or videotape to demonstrate changes over time (including computer animation).
	6	To teach certain advanced scientific or technological concepts (such as the relativity theory, or the quantum theory) without students having to master sophisticated mathematical techniques, using instead animation, physical models, televisual representation of two-, three- or n-dimensional space, and of dynamic change or movement.
	7	To substitute for a field visit (e.g. to a factory, museum, archeological or architectural site, geographical location, etc). Field visits may be used for a number of purposes, for example:
Science/ Technology/ Social Sciences/ Educational Studies/ Humanities	(a)	to provide students with an accurate, comprehensive visual picture of the site, or to provide an overall visual context or environment for certain phenomena, place their study in context;
	(b)	to demonstrate the relationship between different elements of the particular system being viewed (e.g. machinery, production processes, ecological balance);

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1) Bates, T. 1982. Roles and characteristics of television and some implications for distance learning in Distance Education 3(1), pp. 28-50)

(c) to observe differences in scale and processes between laboratory and mass production techniques;
(d) to assist students to differentiate between different classes or categories or phenomena in situ.

8 To bring to students primary resource material, or case-study material, i.e. film or recordings of events that occur naturally, and which by judicious editing and selection, demonstrate or illustrate principles that the study units have covered. This may be used in a number of different ways, for example:

Social Sciences/ Technology/ Educational Studies

(a) to enable students to recognise naturally occurring categories, symptoms, phenomena, etc. (e.g. teaching strategies, mental disorders, examples of certain kinds of human interaction, etc.);
(b) to enable students to analyse a situation, using principles or criteria established elsewhere in a unit; or to test students in this way.
(c) to enable the course team to demonstrate ways in which more abstract principles or concepts established elsewhere in a unit have been applied to the solution of "real-world" problems, where visualisation of the application in its total environment is necessary to understand the way the principle has been applied, and the difficulties encountered.

9 To demonstrate decision-making processes

(a) by filming or observing the decision-making process as it occurs;
(b) by dramatisation;
(c) by simulation or role-playing.

10 To change student attitudes
(a) by presenting material in a novel manner, or from an unfamiliar viewpoint;
(b) by presenting material in a dramatised form, enabling students to identify with the emotions and viewpoints of the main participants;
(c) by allowing the students to identify closely with someone in the process of overcoming problems, or changing his own attitudes as a result of evidence presented in the programme or televised exercise.

11 To bring students examples of films or television programmes, where the critical study and analysis of film or television itself are subject material of a course.

All Areas

12 To record specially events, experiments, species, places, people, buildings, etc. which are crucial to the content of units, but are in danger of disappearing, dying or being destroyed in the near future.
13 To explain or demonstrate practical activities that students are to carry out themselves (e.g. home experiments, interviewing, project work).

	14	To condense or synthesize into a coherent whole a wide range of information which would run to considerable length in print, and which in print would not provide the richness of background material necessary for students to fully appreciate the situation.
Humanities/	15	Through performance, to demonstrate methods or techniques of dramatic production, or different interpretations of plays and novels.
Technology	16	To teach sketching, drawing or painting techniques (e.g. the sketching of three-dimensional engineering components, the construction of fresco, the drawing of perspective, etc.).
	17	To demonstrate the way in which instruments or tools can be played or used; to demonstrate the skills of craftsmen and their relationship with the materials and tools which they use.
	18	To analyse, through a combination of graphics and sound, the structure of music.

APPENDIX F

S T A T I S T I C S

OF

CORRESPONDENCE COLLEGES AND
PRIVATE VOCATIONAL SCHOOLS

1st TUESDAY IN JUNE 1983

(Source: Unpublished Tables, Central Statistical Service)

TABLE F1
INSTITUTIONS, STUDENTS AND STAFF : CORRESPONDENCE COLLEGES AND PRIVATE VOCATIONAL SCHOOLS, JUNE 1983

	Institutions	Students					Staff			
							Lecturers		Other	
		Total	White	Coloured	Asian	Black	Full-time	Part-time	Full-time	Part-time
Correspondence										
Cape	7	27 755	5 792	4 510	787	16 666				
Natal	1	22 872	11 779	275	510	10 308				
Transvaal	17	70 777	32 451	5 581	1 672	31 073				
OFS	1	112	92	18	0	2				
Total	22	121 516	50 116	10 384	2 969	58 049	32	302	320	57
Correspondence and class tuition										
Cape	0	0								
Natal	1	0								
Transvaal	2	1 110	10	30	10	1 060				
OFS	0	0								
Total	3	1 110	10	30	10	1 060	19	175	126	17
Class tuition										
Cape	9	2 017	1 235	487	233	62				
Natal	13	2 495	1 471	83	808	133				
Transvaal	16	2 195	1 375	53	151	616				
OFS	1	143	0	0	0	143				
Total	39	6 850	4 081	623	1 192	954	104	132	74	10
GRAND TOTAL	64	129 476	54 205	11 037	4 171	60 063	155	609	520	84

Institutions per province	
Cape	12
Natal	15
Transvaal	35
OFS	2
	64

PLEASE NOTE: The student numbers opposite each province do NOT indicate students' places of residence but only the sub-division amongst races.

TABLE F2

STUDENTS ACCORDING TO POPULATION GROUP AND COURSE FOLLOWED : CORRESPONDENCE COLLEGES AND PRIVATE VOCATIONAL SCHOOLS, JUNE 1983

Course	Total	White	Coloured	Asian	Black
Vocational Education[1]					
Arithmetic	4 777	3 206	198	352	1 021
Commerce	12 707	9 192	373	572	2 570
Secretarial	9 448	7 041	653	740	1 014
Technology	7 554	5 009	451	321	1 773
Domestic Science	326	314	12	0	0
Art	277	188	44	19	26
Hairdressing	0	0	0	0	0
Beauty culture	37	30	0	5	2
Dressmaking	397	206	31	104	56
Theological and related courses	24 991	5 451	3 482	421	15 637
	10 359	4 716	345	549	4 749
Other	1 491	363	26	183	919
	625	189	1	0	435
Total vocational education	72 989	35 905	5 616	3 266	28 202
Other education[2]					
Std 8 and below	19 114	2 062	2 503	144	14 405
Std 9	91	90	1	0	0
Std 10	37 215	16 094	2 917	761	17 443
Other	67	54	0	0	13
Totals: Other education	56 487	18 300	5 421	905	31 861
GRAND TOTALS	129 476	54 205	11 037	4 171	60 063

1) Including theological and related courses.

2) OTHER EDUCATION SUBDIVIDED ACCORDING TO PERCENTAGES:

	Total	White	Coloured	Asian	Black
Std 8 and below	34	4	4	0,3	26
Std 9 and 10	66	29	5	1,4	30
	100	33	9	1,7	56

TABLE F3

STUDENTS PERMANENTLY RESIDENT OUTSIDE THE REPUBLIC OF SOUTH AFRICA ACCORDING TO PLACE OF RESIDENCE : CORRESPONDENCE COLLEGES AND PRIVATE VOCATIONAL SCHOOLS, JUNE 1983

SWA	2 895
Botswana, Lesotho, Swaziland	2 169
Transkei, Bophuthatswana	4 854
Zimbabwe	15 479
Elsewhere in Africa	1 438
Elsewhere outside Africa	76
TOTAL	26 911

TABLE F4

STAFF : CORRESPONDENCE COLLEGES AND PRIVATE VOCATIONAL SCHOOLS, JUNE 1983

	Total	White	Coloured	Asian	Black
Staff					
Lecturers					
Full-time	155	100	11	18	26
Part-time	609	508	18	17	66
Total	764	608	29	35	92
Other					
Full-time	520	232	90	47	151
Part-time	84	50	11	4	19
Total	604	282	101	51	170
GRAND TOTAL	1 368	890	130	86	262

TABLE F5

EXPENDITURE AND INCOME : 1982 : CORRESPONDENCE COLLEGES AND PRIVATE VOCATIONAL SCHOOLS, JUNE 1983

Total cash payments to staff	5 177 324	Tuition fees	13 160 785
Payments in kind to staff	13 223	Boarding fees	2 400
Interest on loans and bank overdrafts	164 066	Donations from public authorities	130 000
Rent paid	810 830	Other	2 074
Depreciation on equipment	156 389	Rent received	1 815
Depreciation on buildings	559	Interest received	195 661
Capital expenditure out of income	233 840	Other	472 777
Bursaries and pocket-money for students	10 400	Balance (deficit)	550 685
Loans to students	6 080		
Donations, transfers and gifts to other institutions	3 277		
Other	5 928 838		
Surplus	2 011 421		
TOTAL	14 516 197		14 516 197

APPENDIX G[1)]

LEARNING NEEDS IN THE SOUTH AFRICAN CONTEXT

* Technical literacy at the formal, non-formal and informal educational levels.
* Change in attitude towards technical occupations (mainly in the informal educational area but with formal and non-formal aspects).
* Computer awareness and literacy (has informal, non-formal and formal aspects).
* Teacher training (mainly in the formal and non-formal educational area).
* Training of trainers (in the non-formal educational area).
* School guidance and career guidance (mainly in the formal educational area, with non-formal and informal educational aspects).
* Learning needs in the formal educational context.
* Social responsibility and community involvement (attitude development could take place in the formal, non-formal and informal educational areas).
* Economic responsibility (mainly in the informal and non-formal educational areas).
* Learning needs of the gifted and the disadvantaged pupils (mainly in the formal, non-formal and informal educational areas).
* Road safety (mainly in the informal and formal educational areas with possibly a non-formal aspect).
* Free market system (in the formal, non-formal and informal educational areas).
* Development of divergent (lateral, creative) thought processes (mainly at the informal educational level with a formal educational aspect).
* Language (in the formal, non-formal and informal educational areas).
* School readiness (mainly in the informal and formal educational areas, but in the non-formal as far as the parent is concerned).

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1) This is a copy of Appendix A to the Report of the Science Committee of the President's Council on informal and non-formal education in South Africa (1984). It is a summary of the learning needs identified and discussed by the HSRC Work Committee: Learning needs and media utilization (1984).

* General literacy (mainly in the informal and non-formal educational areas).
* Parent training (mainly in the informal and non-formal educational areas).
* Rural development needs (mainly in the informal and non-formal educational areas).
* Health and social needs (mainly in the informal and non-formal educational areas).
* Retraining and continued training (mainly in the formal and non-formal educational areas).
* Management training (mainly in the non-formal educational areas).
* Labour relations (mainly in the non-formal educational areas).
* Home industries (in the informal and non-formal educational areas).
* Communication (in the informal educational area).
* Defence/Civil defence (in the informal and non-formal educational areas).
* Self-help techniques (in the informal and non-formal educational areas).
* Civic matters (in the informal and non-formal educational areas).
* Retrieval of information (in the informal educational area).
* Relations between nations (in the informal educational area).
* Legal procedure (in the informal and non-formal educational areas).

APPENDIX H

A SELECTION OF IMPORTANT LEARNING NEEDS OF THE POPULATION (PARTICULARLY IN BLACK AND COLOURED COMMUNITIES) IN WHICH DISTANCE EDUCATION CAN PROVIDE

BASIC LEARNING NEEDS

A Adults' need for general literacy (functional literacy). This includes particularly the ability to read and write at least one official language, and also arithmetic, approximately to Std 5 level.

B The need for language tuition to acquire fluency in specific languages.

C The need for conceptual development so as to obtain a functional grasp of modern society and its constituent components (compensatory education). This is aimed at four target groups:

* preschool children
* pupils
* students
* adults

DEVELOPMENTAL LEARNING NEEDS

D Further training and in-service training of unqualified and underqualified teachers

E Adult education to bridge the gap between general literacy and Std 10. This consists of two phases:

* the gap between literacy and Std 8, and
* the gap between Std 8 and Std 10 or matriculation exemption

F Training of trainers serving in industry

G Common occupational and life skills of importance in the work situation (mainly in-service training)

APPENDIX I

RECOMMENDATION FOR THE IMPROVEMENT OF THE QUALITY OF FORMAL EDUCATION IN CASES WHERE TEACHERS ARE NOT ADEQUATELY QUALIFIED

The recommendation implies that a distance education system be combined with existing contact education for blacks and coloureds in particular for the purpose of neutralizing to a large extent the combined effect of learning needs B, C and D in school systems. Such a system would fall within area (b) of Diagram 1 and could combine many of the advantages of distance teaching with those of contact teaching.

In practice this implies that the particular school system would provide pupils/teachers with didactically structured study packages consisting of study manuals and possibly additional media where necessary, to use instead of textbooks.

The case could be argued as follows:

* The lower teachers' qualifications are, and the weaker their ability to function independently, both academically and professionally, the more they have to depend on textbooks. There will be an increased tendency to use a textbook-bound style of teaching, rote-learning will be encouraged, and questions and discussion are likely to be discouraged.

* If textbooks were to be replaced with, or supplemented by well-structured study manuals aimed at encouraging students to work independently and interact with their study material, the didactic task would be lifted for the largest part from the shoulders of teachers.

* If study manuals for pupils were augmented with manuals for teachers, teachers would feel confident when using study manuals in class, as this would enable them to structure their preparation over a broader front, thereby ensuring that they remain one step ahead of their pupils.

In addition, such a system also has the following advantages:

* It serves as a type of informal in-service training for teachers. The academic material and didactic design will perforce increase their acquaintance, and occupy them on a daily basis with examples of academic and didactic excellence. This substantial experience of good teaching (which most black and coloured teachers in all likelihood never experienced during their own school careers) could also provide tangible examples for them to link to theory in their own formal studies (particularly distance studies).
* Pupils could work on study units at home or in the classroom under supervision of the teacher.
* Intelligent pupils would probably be able to manage without the help of teachers, and even forge ahead on their own, so that teachers could devote more attention to weaker students. Intelligent students could be used to help weaker students.
* Pupils learn to consult printed matter as a primary source of information. This should help them to study on their own, particularly at post-school level.
* Study manuals could embody the best
  - educational aims
  - methods
  - evaluation
  - perspective of material the department of education concerned has in mind.
* Study material could be enriched systematically for the purpose of not only bridging didactic deficiencies in the teaching system, but also of contributing to improved speaking of official languages, for instance by providing
  - radio or audio cassettes, and
  - conceptual content that is lacking (compensatory education).
* Radio and television contributions to the teaching content could be more effective if they were planned as integral parts of study-units. These inputs could also be used as audio and video cassettes. Where such inputs are not essential, or are of a compensatory nature, alternative learning routes could be planned.

Such an approach should help bring about a more effective correspondence between the SABC's school radio programmes and classroom teaching.

* Pupils could be involved in the learning experience in various ways, such as
  - studying on his/her own;
  - listening to the teacher;
  - participating in group discussions, and
  - participating in didactic games or simulation.
* Teachers would be able to assume a role which suits their professional skills in classrooms. Study manuals could be incorporated or excluded at will. Competent teachers would be able to build upon study manuals and/or experiment with using them in different ways.
* The system could be implemented at relatively short notice (say two years).

The above amounts to recommending that contact education in the existing school system, the SABC's educational services, and distance education through the medium of print should be regarded as three components integrated within a comprehensive educational system, where each is able to make a unique contribution.

The system also creates the possibility of courses being used as distance education for the following purposes:

* For the 56 357 black and 11 424 coloured teachers (indicated in Tables 4.3 and 4.5) who do not have Std 10.
* For other adults who wish to improve their formal teaching qualifications. If this were done, qualified teachers could serve as consultants/tutors for these students outside the usual school hours.
* As course material which could be provided at cost, or at a subsidized rate to correspondence colleges. This would ensure uniform teaching material of high quality. The main task of the colleges would then be to distribute study material and monitor student progress.

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